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Hercules Properties, Inc. / Gelsar Specific Plan

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HERCULES PROPERTIES INC./GELSAR SPECIFIC PLAN

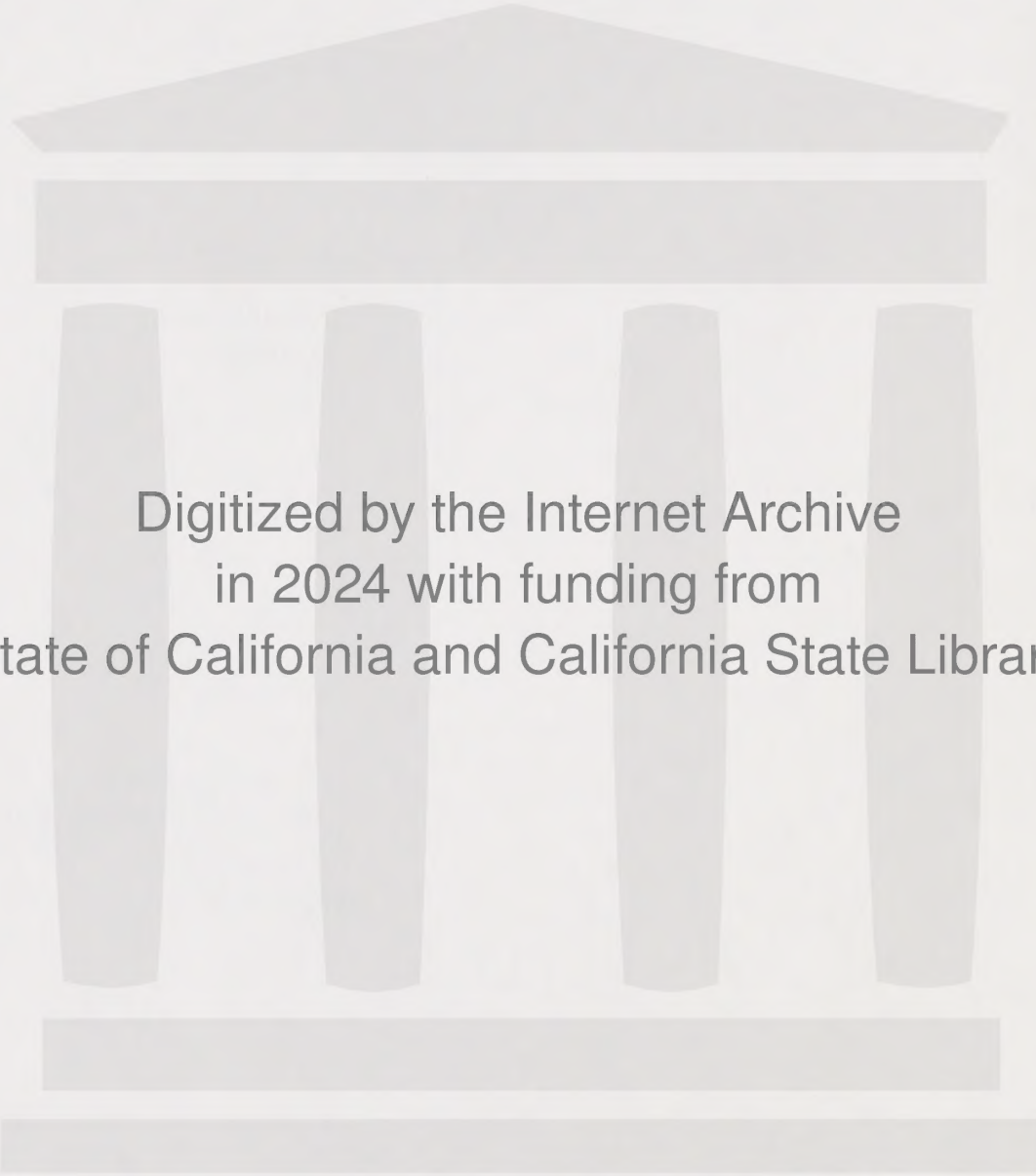
**F I N A L
D R A F T**

**Prepared for the
City of Hercules**

**by
EDAW, Inc.**

**In Association with
Keyser Marston Associates, Inc.
JHK Associates
WESCO, Inc.
SFA Pacific, Inc.**

September 1987



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HERCULES PROPERTIES INC./GELSAR SPECIFIC PLAN

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1. EXECUTIVE SUMMARY

A Specific Plan is a framework for land use implementation. The 1985 General Plan for the City of Hercules identifies several key undeveloped areas which, when fully developed, would provide increased employment opportunities and a more adequate tax base to support community services. A Specific Plan has been undertaken for one of these areas--the Hercules Properties, Inc. and Gelsar, Inc. parcels--to insure that a comprehensive land use program that takes full advantage of the development potential of these parcels will be implemented and that the development plans of individual property owners will be coordinated. This Chapter of the Hercules Properties, Inc./Gelsar Specific Plan is intended to be a freestanding summary of the factors that resulted in the proposed Land Use Plan and the process that will result in its ultimate implementation. More detailed information on the Specific Plan Area can be found in Chapters 2 through 8 of this report and its supporting appendices.

PLAN AREA LOCATION AND BACKGROUND

The Specific Plan Area (SPA) is located in Hercules' Neighborhood 7, between Interstate 80 and San Pablo Bay immediately west of the Highway 4 and I-80 Interchange. It encompasses approximately 271 acres which are currently owned by Hercules Properties, Inc. and Gelsar, Inc. Refugio Creek passes through the center of the SPA before it empties into the Bay. The interior of the site is accessible primarily by unimproved or private roads. A short stretch of Railroad Avenue provides access to the temporary City Hall and the Historic District; a narrow, paved extension of Sycamore Avenue provides access to the temporary Little League field the Hercules Sewage Treatment Plant and the temporary WestCAT corporation yard.

The SPA was once part of the land owned by the Hercules Powder Company which was used for the production of explosives and other chemical compounds until 1977. It is some of the last remaining undeveloped land within the City limits; surrounding areas have been developed for residential and office park uses. The 1983 Dynamite Redevelopment Plan identified infrastructure needs in the area, but did not address land use potentials. Because of this situation, the City began a review of its Neighborhood 7 Plan by means of several related studies. A Waterfront Park Study identified the potential for a water-oriented development which could attract residents and visitors. Flooding problems along Refugio Creek, which transects the SPA, prompted a Creek Relocation Study. New residential and office developments on adjacent lands increased the need to provide compatible land use and circulation within the SPA.

In addition, the City found that the public's health, safety and welfare were threatened by past and present land uses. Within the SPA, special investigations under the direction of the State Department of Health Services and the Regional Water Quality Control Board had been initiated to assess the extent of possible soil contamination as a result of previous industrial use. A variety of new businesses had also begun operations on the site, many in violation of City codes and without necessary licenses and permits. Existing zoning and land use regulations were not sufficient to prevent these uses from becoming a precedent for future unregulated development. Proposed land uses could also potentially conflict with contemplated General Plan amendments which were likely to result from ongoing studies. For this reason a series of Interim Urgency Ordinances were adopted to prevent any development of the Hercules Properties, Inc. parcels until December 1987 and of the Gelsar Properties parcels until July 1987.

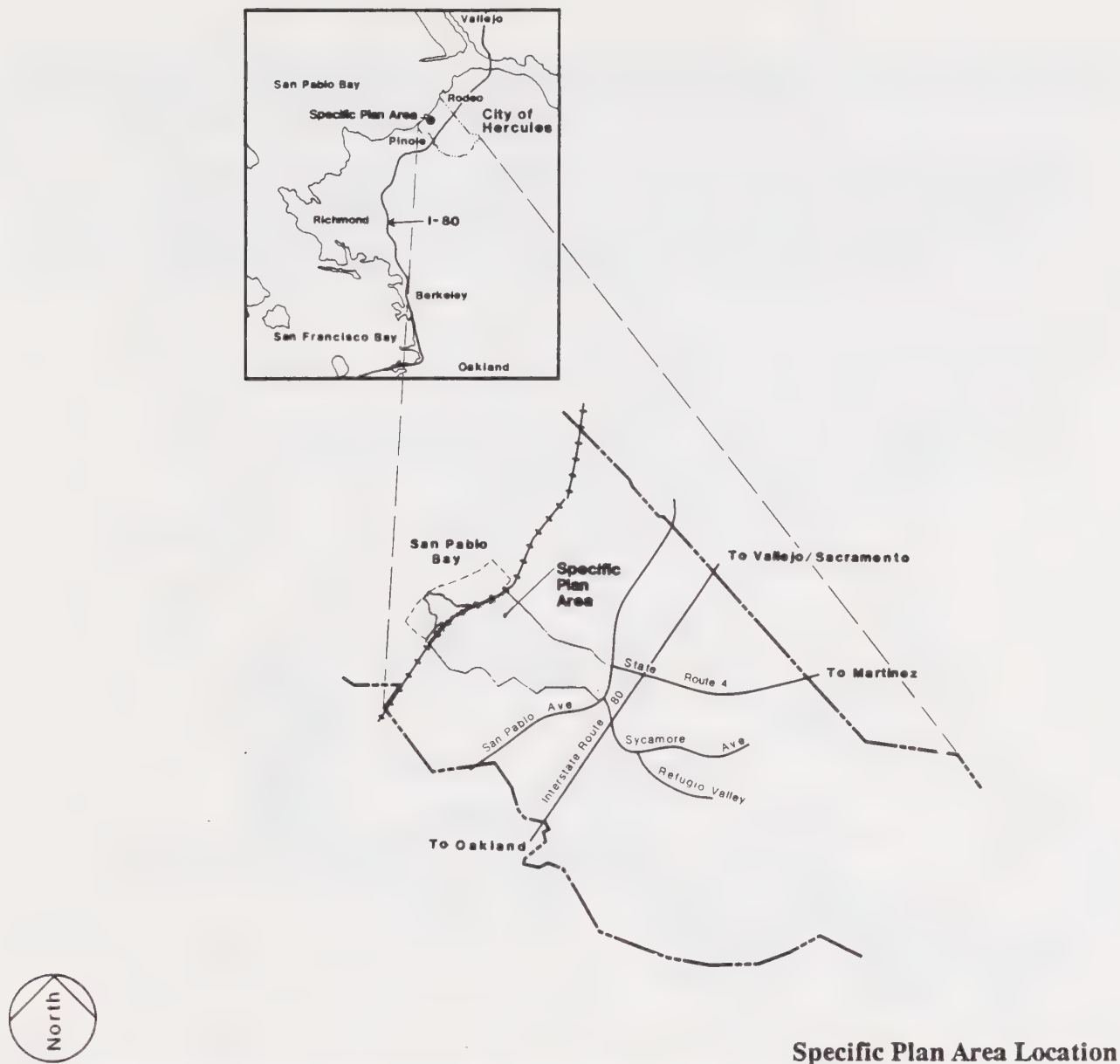


Figure 1.1

The Hercules Properties, Inc./Gelsar Specific Plan recommends comprehensive land use development for these parcels and provides a strategy for its implementation. A City-wide Traffic Study and an Industrial Zoning Ordinance Study were initiated (under separate contracts) concurrently with this Specific Plan. The results of all these studies have been incorporated herein.

EXISTING LAND USE AND DEVELOPMENT ISSUES

The Specific Plan Area encompasses the lower portion of Refugio Creek Valley which opens to San Pablo Bay and which is surrounded by low hills. It is primarily occupied by a variety of industrial uses. Buildings and equipment of the former Hercules powder company and chemical

plant occupy less than half of the area on a site adjacent to the Southern Pacific Railroad tracks and San Pablo Bay. The Hercules Properties, Inc./Gelsar Specific Plan gave special emphasis to the feasibility of reusing all or portions of this plant.

The designated Historic District along Railroad Avenue, above the chemical plant, is a unique area which offers exceptional bay views and access to the water's edge, diverse topography, mature vegetation and clusters of historic buildings, grounds and gardens. This diverse combination of resources is not found in any other nearby East Bay community.

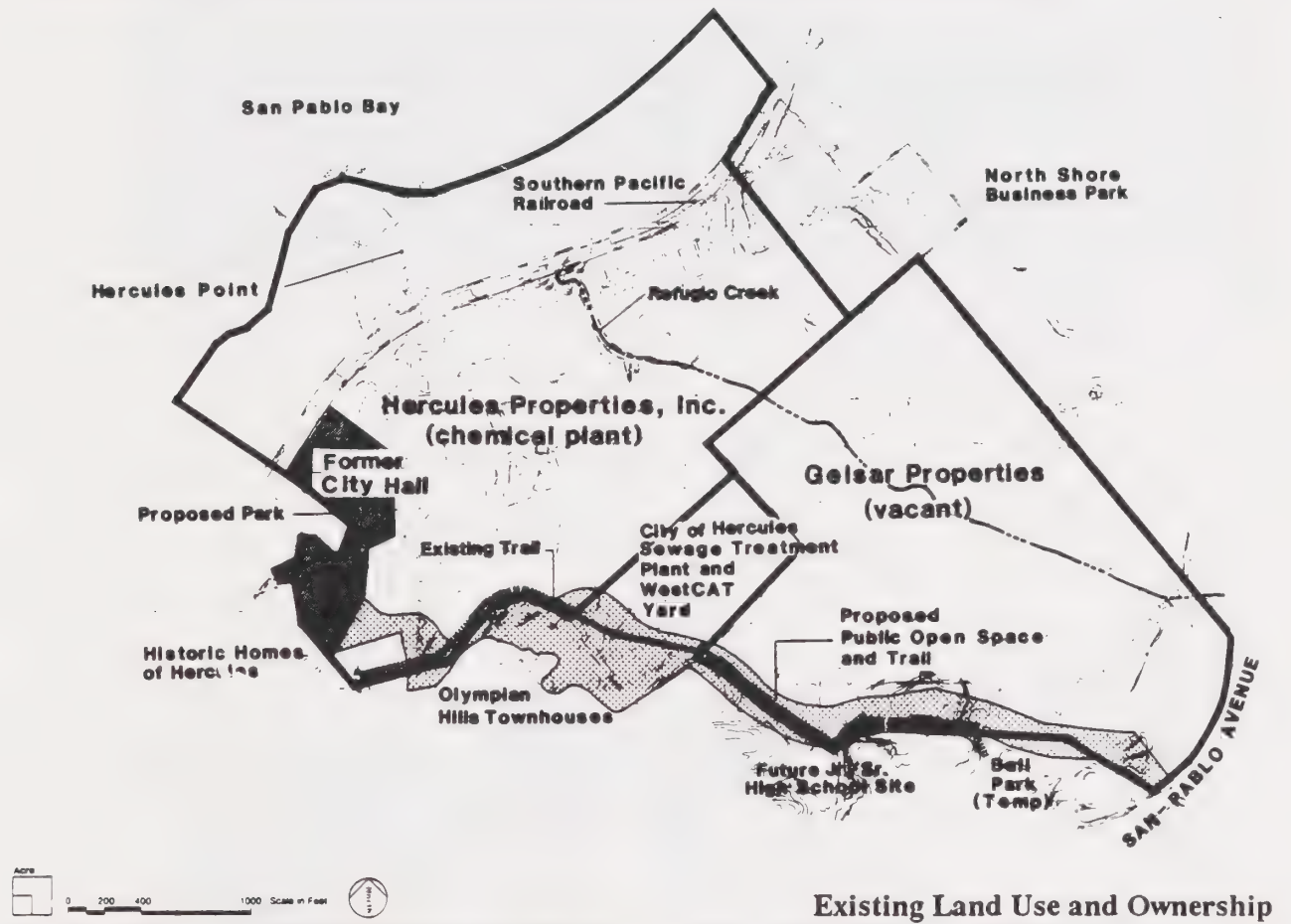


Figure 1.2

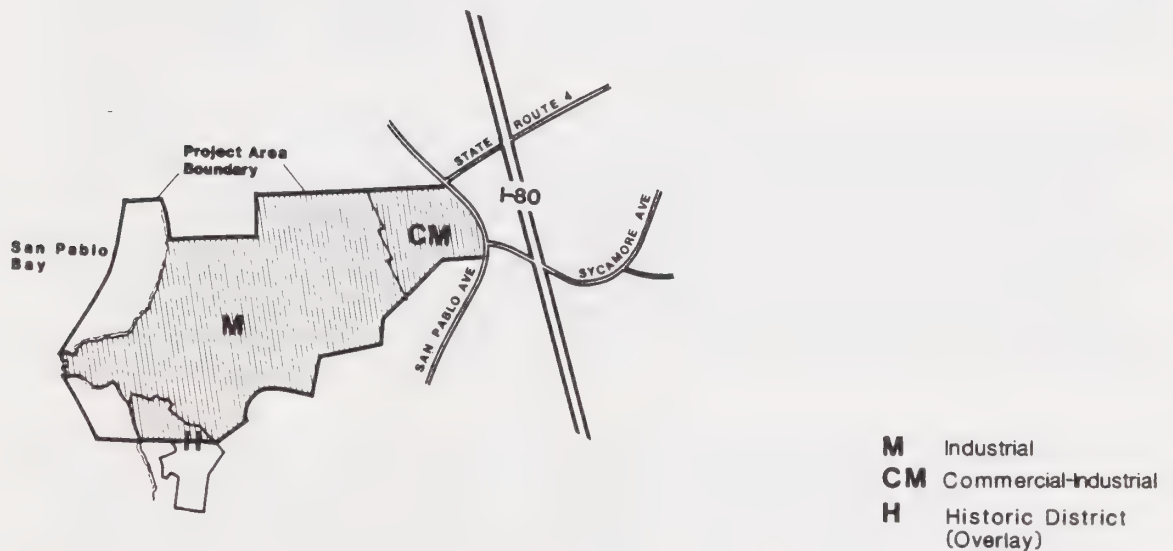
The remainder of the SPA is undeveloped property owned by Gelsar, Inc. The General Plan proposes a multi-use open space corridor along the realigned Refugio Creek channel on the southern boundary of the SPA. The SPA surrounds (on three sides) parcels which are used by the City's wastewater treatment plant and a WestCAT vehicle storage and maintenance yard. Additional adjacent land uses are residential and business park developments.

Several key development issues must be considered for the Specific Plan Area:

- **Soils and Geology:** Development may require removal of uncompacted fill, importation and placement of controlled engineered fill, provision of subdrain

structures, and grading and terracing of slopes; seismic hazard potential will be minimized by compliance with current building code standards for construction.

- **Hydrology:** Refugio Creek and its floodplain is both an opportunity and a constraint; flood hazards, ponded conditions and a high groundwater table necessitate flood control and drainage provisions in any development plan; the realignment of the creek will provide an opportunity to improve hydrologic conditions as well as develop an open space amenity and ecological interpretive area.
- **Biological Resources:** The SPA incorporates a variety of wetland habitat areas that are protected by state and federal guidelines, policies and legislation; these include tidal mudflats, low-lying marshlands, seasonally flooded valley lands, fresh water and brackish water ponds, the tidally influenced Refugio Creek and its riparian corridor. Some of these have been disturbed by previous activities on the site; the primary development consideration is to insure there will be no net loss of habitat acreage or value, whichever is greater; a wetlands mitigation plan will, therefore be required as part of any development plan.



Existing Zoning

Figure 1.3

- **Cultural and Historic Resources:** No significant archaeological resources have been identified within the SPA; however, the California Archaeological Inventory should

be consulted during the preparation of specific development plans. The City has established a Historic District along Railroad Avenue which encompasses homes and administration buildings associated with the old powder plant; some of these structures are currently under rehabilitation; any new development in this area must meet specific design criteria so that the unique character of the area is not changed.

- **Visual Resources:** Higher elevations within the SPA offer expansive views of San Pablo Bay and Mount Tamalpais, and the historic town center is also quite scenic; these factors enhance the development potential of the SPA and should be protected. The deteriorating remains of the old chemical plant, existing industrial operations, the railroad grade and the sewage treatment plant are, however, unsightly and must be removed, screened or enclosed as part of a final development plan.
- **Air Quality:** Daily air quality standards are monitored by the Bay Area Air Quality Management District in Richmond which is the most accurate for Hercules because it is the closest and because Hercules is downwind of it under prevailing winds. New facilities or any modifications to existing facilities may require new permits depending on resulting emissions. Noxious odors, which are not regulated, occasionally emanate from the Hercules Sewage Treatment Plant; this will affect the type and location of development which can occur in certain areas of the site.
- **Noise:** The existing sources of noise within the SPA are the Southern Pacific Railroad and the vehicular traffic on San Pablo Avenue. Proposed land uses in the SPA will be somewhat restricted locationally by these noise levels; in addition, certain types of uses--those which generate unacceptable noise levels for adjacent residential or office use--will be restricted.
- **Hazardous Waste:** Explosive compounds, waste chemical by-products and heavy metals contaminants have been found in localized areas within the SPA. Most known areas of contamination have been cleaned up to a level that allows industrial and commercial uses; recent analysis of soil and groundwater samples, ongoing under the direction of the California Department of Health Services, have not indicated other serious problems. Current clean-up levels do not allow residential or school use in some areas. If additional contaminants are identified during future development, clean-up to at least this level will be required. Groundwater contamination has not been identified as a problem within the SPA.
- **Traffic:** The SPA is currently accessible by Railroad Avenue on the west and by Sycamore Avenue and John Muir Parkway on the east. There are currently no dedicated public roadways within the SPA. The proximity of the SPA to two regional highways, Interstate 80 and State Route 4, offers a high level of accessibility that is essential for commercial developments. At the same time, the single interchange which serves both highway-to-highway connections and local access presents a significant constraint to traffic movement. In anticipation of future development within and adjacent to the SPA, both Caltrans and the City of Hercules are currently investigating improvement alternatives to both this particular interchange and the overall city-wide circulation.

Public transit also serves the SPA; AC Transit buses provide connections to El Cerrito and Crockett; BART Express Route 1, which will soon increase in frequency,

connects the site to the Del Norte Station in El Cerrito. Additionally, WestCAT is converting most of its dial-a-ride service to fixed routes which could provide service within the SPA.

- **Utilities:** The primary development issue regarding utilities is sewage treatment capacity. At the present time, the SPA is served by both the Hercules-Pinole and the Hercules treatment plants, which have a combined capacity of 2,570,000 gallons per day attributable to the City. The potential development on the SPA could require from 835,000 to 7,154,900 gallons per day, depending on the type of user. Sewer capacity in the Hercules-Pinole treatment plant for SPA properties was purchased in 1983 by the landowners through an assessment district. This was at an average rate of 850 gallons per acre, however, and project development could require three to four times that capacity. Although the Hercules Plant has sufficient expansion potential, a detailed study will be required to ensure that the outfall system is also adequate.

Solid waste disposal is also a potential issue. Projections from the Richmond Sanitary District indicate adequate capacity until the year 2000, but these estimates do not include proposed development for the SPA. Here, too, more detailed analysis will be required.

All other utilities are immediately available to the site and present no development problems.

ECONOMICS

Both the regional and local trade areas for the SPA have high household incomes and a relatively rapid rate of population growth is projected. Regional and local-serving retail uses within the SPA are expected to be competitive by the early 1990's. Competition for office, light industrial and research and development use is expected to remain strong, so these uses may not be attracted to the SPA until the mid 1990's. Based on expected population increases, it is anticipated that there will be continued strong demand for residential development. Additionally because of the unique physical and architectural character of the historic town center and waterfront, Hercules has the market potential to serve as a regional focus for specialty office, retail and related commercial activities.

THE DEVELOPMENT PLAN

The land use concept for the SPA was developed from a synthesis of market potentials with the opportunities and constraints presented by the land base of the SPA. The plan is designed to take maximum advantage of the portions of the site most attractive for development--the areas adjacent to the Bay and to San Pablo Avenue. It is also designed to enhance the quality of areas within the SPA that would be most sensitive to development impacts--Refugio Creek, wetlands and baylands. The land use concept provides a framework for development which allows flexibility in land use choices to respond to market conditions over the next 10 to 15 years.

The development plan divides the SPA into 14 subareas which define general land uses. These are summarized in Table 1.1, are defined below and are illustrated in Figure 1.4.

Table 1.1

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
DEVELOPMENT PLAN SUMMARY**

<u>Subarea</u>	<u>Name</u>	<u>Acres</u>	<u>FAR</u> ⁽¹⁾	<u>SF of GBA</u> ⁽²⁾	<u>Mix of Uses</u>
1	Historic Hercules	20.7	.10	90,000	Office/retail/eating & drinking
2	Waterfront Park Add'n	11.6	NA ⁽³⁾	NA	NA
3	Waterfront Commercial	13.4	.10	58,000	Limited retail/eating & drinking
4	Special Study Area	39.0	NA	NA	NA
5	R&D/Office	13.9	.50	303,000	R&D/office
6	Residential	11.9	6-10 DU/AC	106,000	Residential (88 DU @ 1,200 SF = 106,000 SF)
7	Light Industrial	10.1	.35	154,000	Light industrial
8	Relocated Plant Area	18.0	NA	297,000 ⁽⁴⁾	Process Development/R&D
9	R&D/Office	12.1	.45	237,000	R&D/Office
10	Light Industrial	33.5	.35	511,000	Light industrial
11	Light Industrial	11.0	.35	168,000	Light industrial
12	Commercial	20.3	.50	442,000	Retail/office/eating & drinking/hotel (300 rooms @ 700 SF = 210,000 SF)
13	Creek/Open Space Corr.	31.9	NA	NA	NA
14	R&D/Office	9.7	.45	190,000	R&D/Office
--	Major Roads	14.3	NA	NA	NA
	TOTALS	271.4	.30 (on 174.5 net acres)	2,556,000	

(1) Floor to area ratio, based on gross floor area.

(2) GBA is defined as gross building area.

(3) Not Applicable.

(4) Based on full enclosure; presence of non-enclosed equipment would displace some GBA.

Source: EDAW, Inc. and Keyser Marston Associates, Inc., September, 1987.

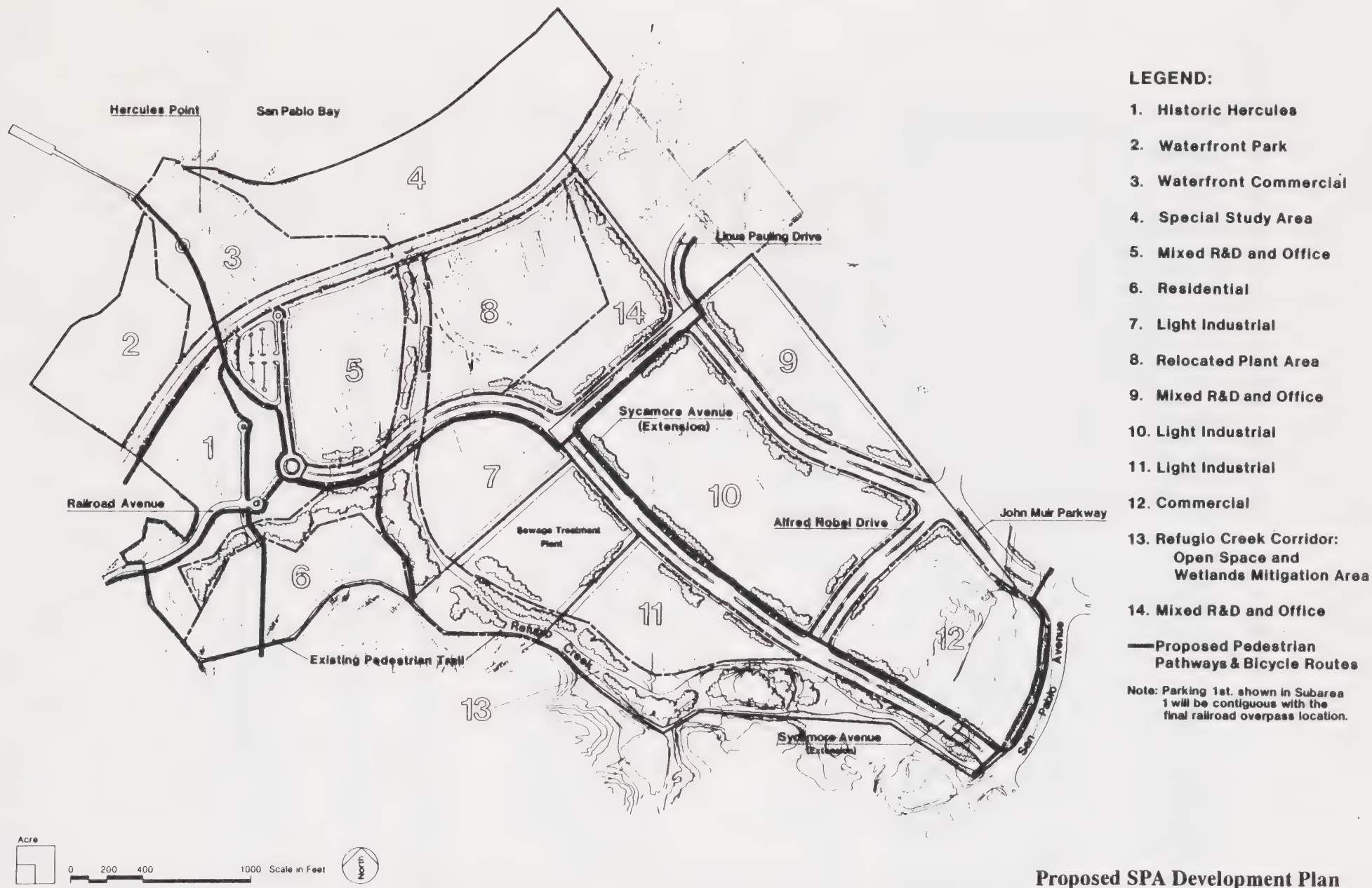


Figure 1.4

Refugio Creek Corridor and Wetlands Mitigation Area (Subarea 13)

Location: As in previously proposed Refugio Creek relocation corridor (Gelsar Tentative Map #6282) along southern boundary of site, then crossing through the Hercules Chemical Plant site to its present outfall into San Pablo Bay. A multi-purpose open space corridor to accommodate stormwater drainage, pedestrian and bicycle pathways, wetlands mitigation and landscape buffer zones.

Rationale: The benefits to be gained from combined Refugio Creek corridor and wetlands mitigation area are: (1) the amount of wetland to be created will be centralized by directing restoration efforts to a single area; this would have a direct biological benefit since small, isolated wetlands would have less habitat value; (2) the biological value of the mitigation site will be of at least equal value to that of the lost wetlands because the restored wetland can be developed into a perennial freshwater marsh by including flow from the relocated Refugio Creek; (3) the overall wildlife habitat diversity of the mitigation area could be increased by including upland buffer areas; and (4) the marsh/creek restoration can add an appealing landscape element which can be developed as a linear park site, land use buffer and natural resource interpretive area.

Use: Stormwater drainage and detention, flood control, pedestrian trails, wildlife habitat, wetlands mitigation and to provide a buffer between residential and the designated Junior-Senior High School site, and light industrial uses.

Regional Commercial (Subarea 12)

Location: Easternmost portion of the site, with frontage on San Pablo Avenue.

Rationale: To take advantage of the high visibility location and direct freeway access.

Use: Regional retail shops, restaurants, services and office space; a 300 room hotel, at final buildout. A transit transfer site will be developed in this area to serve commercial, residential and industrial uses. As a minimum, it will require a bus shelter and a lane on a side street which can accommodate four buses. The transfer point is essential for WestCAT's fixed route service.

Light Industrial (Subareas 7, 10 and 11)

Location: Central portions of the SPA, adjacent to the Hercules Sewage Treatment Plant.

Rationale: This portion of the SPA does not enjoy the advantages of other areas--bay views and frontage along San Pablo Avenue--and is, therefore, more suitable for low occupancy uses.

Use: Light manufacturing and assembly plants, industry related office, storage and service functions, and distribution centers enclosed in single or multi-occupant structures (see also Table 8.1); design criteria for structures will be identical to those for research and development and office use; lot coverage and landscape requirements will be less stringent.

Mixed R&D and Office (Subarea 9)

Location: North of John Muir Parkway extension, adjacent to North Shore Business Park.

Rationale: To provide for land use which is more compatible with adjacent uses in North Shore Business Park.

Use: A campus-like environment for corporate headquarters, research and development facilities, office and warehouse use in high quality single or multi-occupant buildings.

Mixed R&D and Office (Subarea 14)

Location: Northeast portion of HPI property, south of the railroad and immediately adjacent to the North Shore Business Park.

Rationale: To provide a more compatible adjacent land use and a visual buffer for the Relocated Plant Area, Subarea 8.

Use: As in Subarea 9, above.

Relocated Plant Area (Subarea 8)

Location: The portion of the Hercules Plant site to the north and east of Refugio Creek.

Rationale: A compact land area within which the usable plant equipment that would be most difficult to move is located; the area is also served by a railroad spur.

Use: A campus-like environment for process R&D, industrial R&D, and manufacturing and production (see also Table 8.1); long-term reuse of the plant site would be possible if a short-term plan with a specified timetable for visual clean-up of the entire site and for the enclosure of all new facilities and operations (according to design guidelines set forth in Chapter 7) is developed and approved.

Mixed R&D and Office (Subarea 5)

Location: The portion of the Hercules Plant site to the south and west of Refugio Creek.

Rationale: To take advantage of bay views and the proximity to Historic Hercules and the Waterfront.

Use: A campus-like environment for corporate headquarters use in high quality, enclosed single occupant buildings.

Medium Density Residential (Subarea 6)

Location: Adjacent to and directly south of Historic Hercules, on the southeastern side of the hill which faces the Olympian Hills townhouse development, and faces away from the chemical plant.

Rationale: To take advantage of the potential pedestrian amenities of Historic Hercules and the Waterfront and to provide a land use that is compatible with residential development on adjacent hillsides.

Use: Residential development--condominiums and/or townhouses--with an average of 8 dwelling units per acre; entrance and service access will be through Historic Hercules via Railroad Avenue; the housing will be of a character and scale which will be compatible with the existing vernacular architecture of Historic Hercules; separate pedestrian linkages to Historic Hercules and adjacent parks and trails will also be provided. Sycamore Avenue Extension will be linked to the Historic Hercules visitor parking area; emergency only access will be provided from Sycamore Avenue Extension to the residential area; only residential traffic will be permitted through the housing area.

Special Study Area (Subarea 4)

Location: The tidal mudflat area and submerged lands to the north and east of Hercules Point.

Rationale: To provide an opportunity for innovative future land use proposals which can be developed within the existing regulatory framework.

Use: To remain undeveloped unless specific and innovative development proposals which are compatible with its ecological sensitivity and with regulatory agency requirements are proposed and permitted. An inter-agency "round table" will be established to coordinate, review and approve such proposals.

Waterfront Commercial (Subarea 3)

Location: Hercules Point lands which are above mean sea level.

Rationale: To take advantage of spectacular views of the entire San Pablo Bay, potential water access and proximity to Historic Hercules.

Use: Recreation and tourism-generating activities such as restaurants, fishing pier, tourist-oriented retail, retail concessions and a small day use conference or community center; pedestrian and service vehicular access only will be provided over the railroad tracks by means of the existing trestle, which will be renovated; all public parking will be located on the mainland site of the railroad; pedestrian access from Historic Hercules and the East Bay Regional Parks area will be provided and will be separated from vehicular circulation.

Waterfront Park Area (Subarea 2)

Location: The tidal mudflat area to the south and west of Hercules Point.

Rationale: To provide a pedestrian linkage between existing East Bay Regional Park lands and the Waterfront Commercial subarea.

Use: Added to the mainland area managed by East Bay Regional Parks as an ecological study area; no development other than pedestrian trail access from Historic Hercules and the Waterfront Commercial Subareas.

Historic Hercules (Subarea 1)

Location: Along both sides of Railroad Avenue in the vicinity of the former City Hall and Hercules Properties, Inc. offices.

Rationale: To take advantage of the center's combination of historic landscape and buildings, hilly terrain and bay views, which is unique in the East Bay.

Use: A regional attraction, developed as a professional office and service and retail center to serve adjacent residential areas and visitors to the waterfront. High quality infill development matching the character and scale of the existing structures, streetscape improvements and pedestrian linkages to the waterfront park are recommended. The parking area proposed by the Waterfront Park Plan for the knoll south of Railroad Avenue will be relocated near the eastern (mainland) access to the existing railroad overpass. The lot will be sized to serve both Historic Hercules and the Waterfront Commercial subareas. It will be a public parking facility developed by the City. If, at a later state of development, an alternate railroad overpass is designated, the parking area would be moved to a new location adjacent to the overpass. On-street limited permit and handicapped parking serving business establishments along Railroad Avenue will also be provided. The size of these parking areas will be restricted so that the intimate scale and unique character of Historic Hercules will be retained; they will be provided by the developer.

CIRCULATION PLAN

The Circulation Plan for SPA requires an internal street network which provides for adequate access and safe and efficient movement of traffic. Key elements of the plan are illustrated in Figure 1.5. Traffic and transit recommendations were based on the existing Hercules General Plan which did not include a BART station. Several off-site improvements, including two access points along San Pablo Avenue and major access roads to and from the regional highways, are also necessary to accommodate traffic that will be generated by the development.

ENVIRONMENTAL REVIEW

A multilevel environmental review process has been established: (1) an initial review to assess potential impacts at the Specific Plan level and (2) several, more focused, reviews when detailed development applications are submitted. The Initial Study has been completed for the Hercules Properties, Inc./Gelsar Specific Plan and a Negative Declaration has been proposed. It is anticipated that all potential short and long-term impacts generated by the proposed plan can be mitigated and would not have a significant effect on the environment (Appendix E). This analysis does not apply to other, more detailed, development entitlements. As these are proposed in the future, additional environmental review will be conducted on a case by case basis.

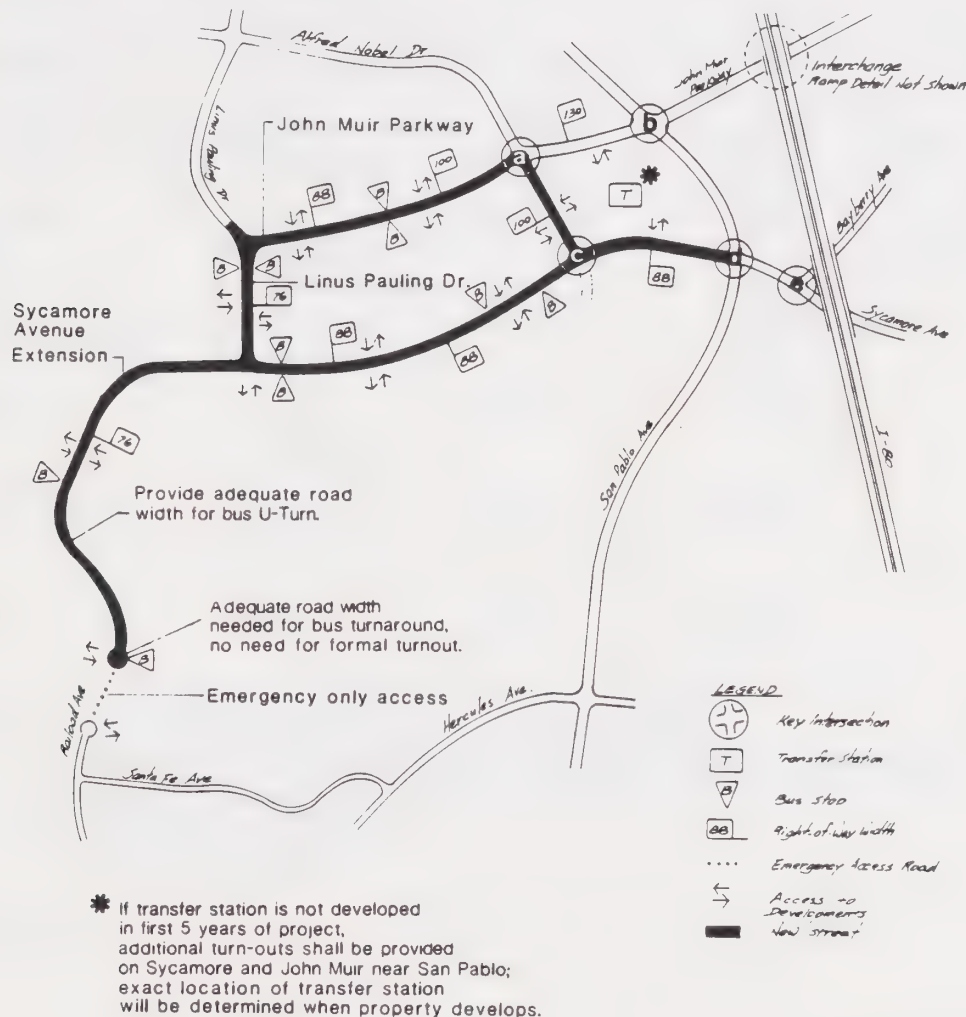
DEVELOPMENT GUIDELINES

The Plan for the Hercules Properties Inc./Gelsar area has a projected development "horizon" of ten to fifteen years. Planning and design guidelines have, therefore, been prepared as part of the Specific Plan to provide a framework for translating the proposed land use concepts into more detailed requirements for City staff and developers to follow during this period of time. The guidelines are intended to achieve the style, character and quality of development

envisioned by the City. A broad summary of design guidelines for each Subarea appears in Table 1.2. More specific guidelines are presented in Chapter 7 of this document.

IMPLEMENTATION

The implementation process for the proposed development will require a four-phase process wherein actions are initiated by both the City and potential developers. This process is outlined in Figure 1.6. New zoning ordinances will be required as part of this process; they are outlined, along with phasing and financing strategies, in Chapter 8.



Circulation Plan

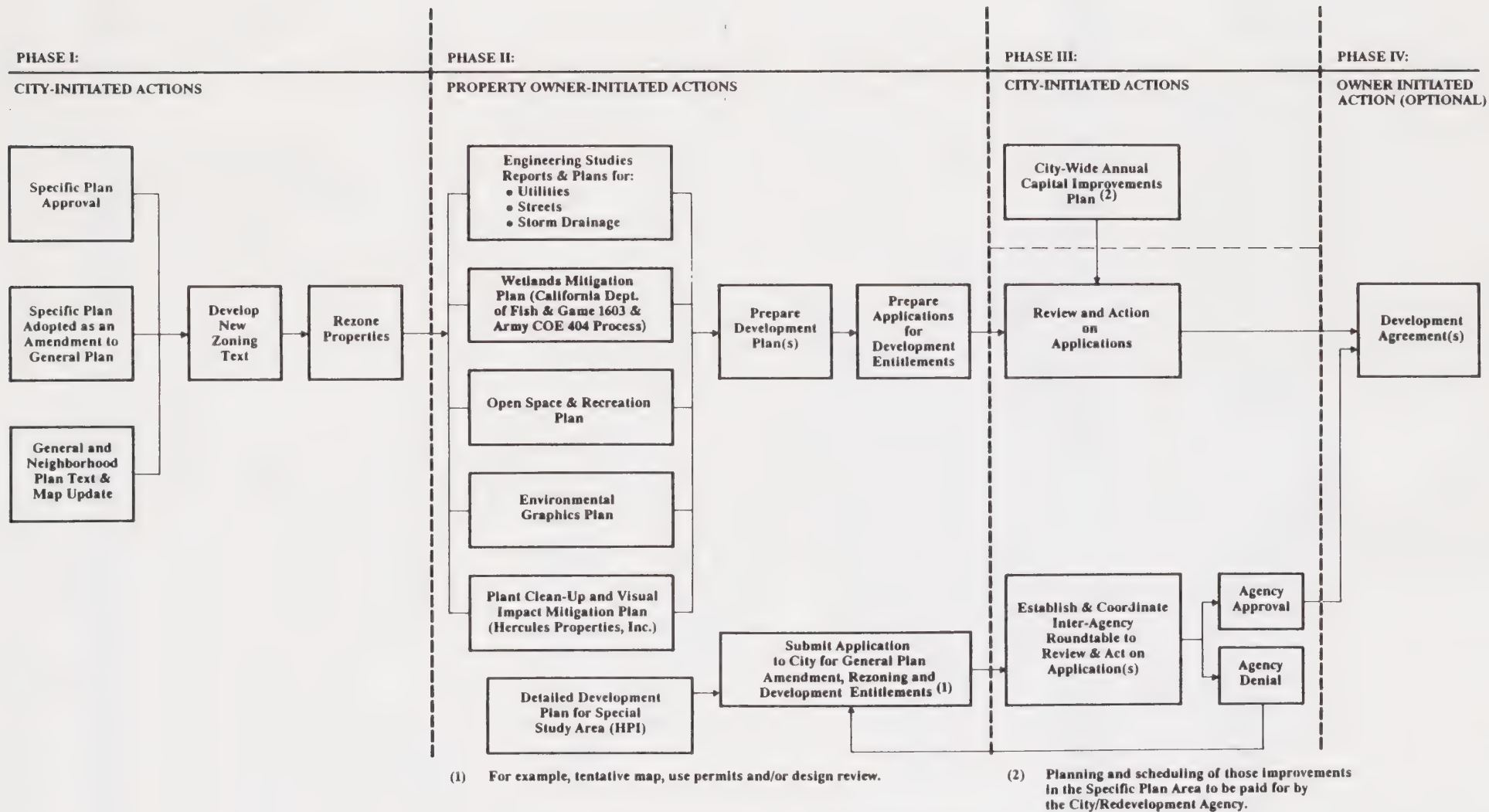
Figure 1.5

Table 1.2**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
SUBAREA DEVELOPMENT GUIDELINES SUMMARY**

Subarea(s)	Height Limit(1)	Maximum Lot Coverage	Setback from Street Right-of-Way	Landscape Requirements
Historic Hercules	(2)	(2)	(2)	(2)
Waterfront Park	NA	NA	NA	NA
Waterfront Commercial	25 feet (1-2 stories)	30%	NA	NA
Medium Density Residential	35 feet (2 stories)	6-10 du/ac	20 feet	30% (usable open space)
Mixed R&D/Office/ Relocated Plant Area⁽³⁾	40 feet (3 stories)	45%	30 feet	40%
Light Industrial	35 feet (2 stories)	60%	30 feet	30%
Regional Commercial	35 feet (2 stories) ⁽⁴⁾	30%	30 feet	20%
Open Space	NA	NA	NA	NA

- Notes: (1) See Sections 7.2.3 and 7.2.5, Building Architecture.
 (2) All new structures shall conform to existing conditions.
 (3) See Section 7.2.3, Building Architecture, Visual Impact Mitigation for Unenclosed Structures.
 (4) Hotel height limit is 80 feet.
 NA - Not Applicable

Source: EDAW, Inc.



2. INTRODUCTION

The Land Use Element of the General Plan for the City of Hercules states the City's intent to provide a balance of residential, commercial and industrial uses. It also identifies several key undeveloped areas which are currently zoned for industrial use and which, when fully developed, would provide residents of the City with employment opportunities and a more adequate tax base to support community services. A Specific Plan has been undertaken for one of these areas--the Hercules Properties, Inc. and Gelsar, Inc. parcels--as a mechanism to insure a comprehensive land use program and to coordinate the development plans of individual property owners.

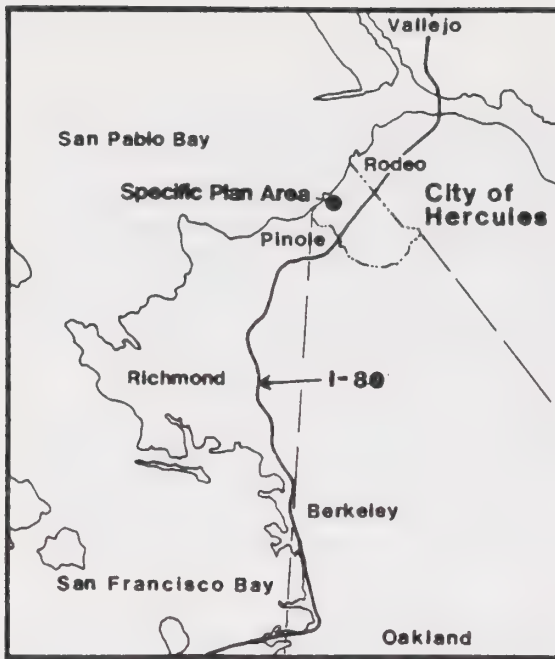
Following a process of data collection, environmental analysis, and design concept alternatives development, the planning advisory committee (two City Council members and two planning commission members) identified, a preferred land use program. This preferred program was circulated in draft form for public and agency review. It was also the subject of two study sessions by the City Council and Planning Commission and a special review session by the planning advisory committee. Questions were resolved through these discussions and through a series of memoranda which provided formal responses to all public and agency concerns. This extended review process resulted in several changes to the initial plan recommendations as well as several key policy recommendations to ensure that the intent of the plan is carried forth as it moves into the implementation phase. This Hercules Properties, Inc./Gelsar Specific Plan document explains the land use goals and objectives established for the Specific Plan Area, recommends a land use development plan that has gained broad support, and provides a strategy for its implementation.

2.1 SPECIFIC PLAN AREA LOCATION AND PROJECT BACKGROUND

The Specific Plan Area (SPA) area is located near the intersection of State Highway 4 and Interstate 80 in west Contra Costa County, in the City of Hercules (Figure 2.1). It lies entirely within the Neighborhood 7 planning district. Several parcels comprise the 271 acre site (Appendix A); Hercules Properties, Inc. owns approximately 167 acres and Gelsar, Inc. owns approximately 104 acres. Much of the SPA is located in Refugio Creek Valley; the creek passes through the center of the property before it empties into the Bay. Interior portions of the SPA are accessible primarily by private or unimproved roads. A narrow paved extension of Sycamore Avenue provides access from San Pablo Avenue to the Hercules sewage treatment plant and the temporary Little League fields. The terminus of Railroad Avenue provides access to the southwestern portion of the SPA.

The North Shore Business Park, which is currently being developed, occupies a site adjacent to the northeastern edge of the SPA; San Pablo Bay and the Southern Pacific Railroad tracks form the northwestern boundary. The southern half of the SPA is adjoined by single family and condominium residential development. The SPA also has approximately 1,000 feet of frontage on San Pablo Avenue. The current City Hall, the Police Station and the former Hercules Company Clubhouse (now under restoration) are located in the southwest portion of the SPA, in the Historic District along Railroad Avenue. The SPA surrounds the Hercules sewage treatment plant on three sides; the designated Junior-Senior High School site is immediately adjacent, to the southeast.

The entire SPA and 1,000 contiguous acres were once part of the lands owned by the Hercules Powder Company, which was used for the production of explosives and other chemical



Specific Plan Area Location

Source: Hercules General Plan

Figure 2.1

compounds for nearly 100 years. Although the main plant was closed in 1977, a number of smaller manufacturing businesses have leased small portions of the original plant site near Hercules Point. Much of the remaining land was sold and developed for residential use. Hercules is situated within a reasonable commuting distance from San Francisco; because of this, housing units sold quickly, resulting in a rapid population increase and a predominance of residential land use within the City. Industrially zoned sites such as the SPA remained largely undeveloped because they were not in demand. This unbalanced land use mix produced an unstable financial base for the City, as well as an excess of workers over jobs.

The situation prompted the City to begin a review of its Neighborhood 7 Plan in 1985. Several concurrent studies were initiated as part of this review. A Waterfront Park Study was undertaken to assess the City's waterfront lands, which are adjacent to the SPA, and its historic structures, some of which are within the SPA. That plan substantiated the potential for an economically viable water-oriented development which could attract visitors to the area.

In response to flooding problems along Refugio Creek within the SPA, a study for the relocation and channel upgrade of the creek was initiated in 1985. The study has been submitted for review by County staff. Requirements for peak flow will determine the appropriate channel configuration.

The recent development of residential and office uses on adjacent parcels suggested that amendments to the General Plan, in the form of a Specific Plan for the area, would be necessary to provide for compatible land use and circulation.

As a result of the continuing review of the Neighborhood 7 Plan Area, the City and the Rodéo Fire Protection District staff compiled a list of both short-term and long-term problems in the Neighborhood 7 area. Several new businesses were found by the City staff to be operating on the site in violation of City codes and without necessary licenses and permits (Ordinance 223, Appendix B). The Hercules Properties, Inc., property was at that time the subject of investigations, directed by the State Department of Health Services and the San Francisco Bay Regional Water Quality Control Board, as to the presence of hazardous materials on the site which may have resulted from its former use for production of dynamite and fertilizer.

The City staff determined that then-existing zoning and land use regulations were not sufficient to prevent a precedent for similar new business operations in the Neighborhood 7 area, and that many proposed land uses could conflict with contemplated General Plan and Zoning Ordinance amendments which were likely to result from studies then underway, or studies anticipated to be authorized by the City Council within the first six months of 1986. Accordingly, on December 18, 1985, the City Council adopted Ordinance 223, as authorized by Section 65858 of the California Government Code, prohibiting approval of any entitlements for use on the specified property until studies could be completed and the General Plan and Zoning Ordinance could be amended to reflect the results of those studies. The prohibition of new approvals of entitlements for use was subsequently extended by Ordinances 228 and 243 until December, 1987.

Early in June, 1986, the City contracted to undertake a Specific Plan for lands controlled by Hercules Properties, Inc. and Gelsar, Inc. The objectives of the Hercules Properties Inc./Gelsar Specific Plan are:

- To identify land uses that would allow development of the site in a manner that is compatible with existing and planned development and environmental constraints.

- To discuss the opportunities for re-use of portions of the existing plant equipment at the Hercules Properties parcels as part of a research and development complex.
- To take advantage of the scenic waterfront and the Historic District.
- To describe existing and project near future market conditions for potential industrial and non-industrial businesses.
- To recommend the mix of uses that would take maximum advantage of the special characteristics/opportunities at the site (particularly the creek and bay frontage and views) and that are economically feasible.
- To recommend an on-site circulation network to accommodate truck and car traffic from the recommended mix of land uses.
- To assess the ability of existing and planned public infrastructure, particularly off-site streets, sewers and the sewage treatment plants at Hercules and Pinole, to serve the recommended land uses.
- To prepare amendments to the City's General Plan and Zoning Ordinance, as needed, to implement the Plan.
- To fulfill State and City guidelines for implementing the California Environmental Quality Act.
- To coordinate the results of this study with the Industrial Zoning Ordinance study.

Immediately following the initiation of the Hercules Properties, Inc./Gelsar Specific Plan, the City separately contracted for a city-wide traffic study (with a computer-based model capable of forecasting traffic impacts based on various build-out scenarios) by JHK Associates, and for a review of its industrial zoning ordinance and preparation of a draft hazardous materials ordinance, by Fred Etzel of Henn, Etzel and Mellon.

In June of 1986, Gelsar Inc. applied for a subdivision map for an eight-lot industrial subdivision of its 104-plus acre parcel. The City staff determined that action by the City on the Gelsar, Inc. tentative map application would potentially conflict with the planning and zoning studies that had been contracted for and were being prepared at that time. Finding that approvals for land use proposals on these properties, without the information from a completed Specific Plan and City-wide traffic study would present a threat to the public health, safety and welfare, the Hercules City Council adopted Ordinance 233 prohibiting new approvals of entitlements for use while the studies were being completed. This prohibition was subsequently extended until July, 1987 by the adoption of Ordinance 236.

2.2 INTENT OF THE SPECIFIC PLAN

Under California Law (Government Code Section 65459 et seq.), cities and counties may use Specific Plans to develop policies, programs, and regulations to implement the jurisdiction's adopted General Plan. Specific Plans often function to coordinate individual development proposals within a defined area. The Hercules Properties, Inc./Gelsar Specific Plan will be used as the basis for establishing future land use designations for parcels currently owned by Hercules Properties, Inc. and Gelsar, Inc.

The law requires that a Specific Plan include text and diagrams specifying:

- The distribution, location and intensity of land uses, including open space, within the plan area;
- The distribution, location and capacity of infrastructure, including transportation, sewage, water, storm drainage, solid waste and energy systems;
- Standards and criteria for development and utilization of natural resources; and
- An implementation program, including capital improvement plans, regulations and financing strategies.

Specific plans are intended to be vehicles for implementing the goals and policies of a community's General Plan and can only be adopted or amended if they are consistent with the jurisdiction's General Plan.

2.3 HOW TO USE THE SPECIFIC PLAN

A Specific Plan is a framework for land use implementation. The Hercules Properties, Inc./Gelsar Specific Plan report is divided into eight chapters. Chapter 1 is a condensed summary of the entire plan; it is intended as a stand-alone document which sets forth significant planning issues, land use recommendations and implementation strategies. Chapter 2 provides the background which resulted in the initiation of the Specific Plan effort and outlines the goals and intent of the plan.

Chapter 3 focuses on the existing conditions within the Specific Plan Area--its current land use and regulatory framework--as well as environmental opportunities and constraints. Chapter 4 assesses the market context within which the SPA is situated so that recommendations for the most feasible land uses can be made. In Chapter 5, a synthesis of environmental and economic opportunities and constraints results in a proposed Development Plan; a Circulation Plan is also proposed.

In Chapter 6, the broad regulatory framework for the proposed Development Plan, as well as its relation to the Hercules General Plan, is discussed. Development guidelines which support the plan are delineated in Chapter 7; they include general site-wide recommendations as well as guidelines that are specific to particular land uses. They are intended to establish the quality and character of development envisioned by the City. Finally, in Chapter 8, strategies for the implementation of the Hercules Properties, Inc./Gelsar Specific Plan are set forth. The proposed development plan has a projected 10 to 15 year build-out. New zoning ordinances, a well defined plan review process, phasing and funding options will be required for its long-term realization.

Existing Site Characteristics and Development Issues

3. EXISTING SITE CHARACTERISTICS AND DEVELOPMENT ISSUES

3.1 LAND USE

3.1.1 Existing Uses Within the Plan Area

The Specific Plan Area (SPA) is currently occupied by a wide diversity of land use types and intensities. Nearly 40 percent of the site is vacant and undeveloped land. These parcels are owned by Gelsar Properties, Inc. and are situated between the Hercules sewage treatment plant (adjacent to the center of the SPA) and San Pablo Avenue (Figure 3.1). Lands immediately adjacent to San Pablo Avenue are zoned for industrial and commercial uses; those closer to the City-owned Hercules sewage treatment plant are zoned for industrial uses (Figure 3.3). The West Contra Costa Transit Authority (WestCAT) van service operates a vehicle storage and maintenance facility on City property, adjacent to the sewage treatment plant.

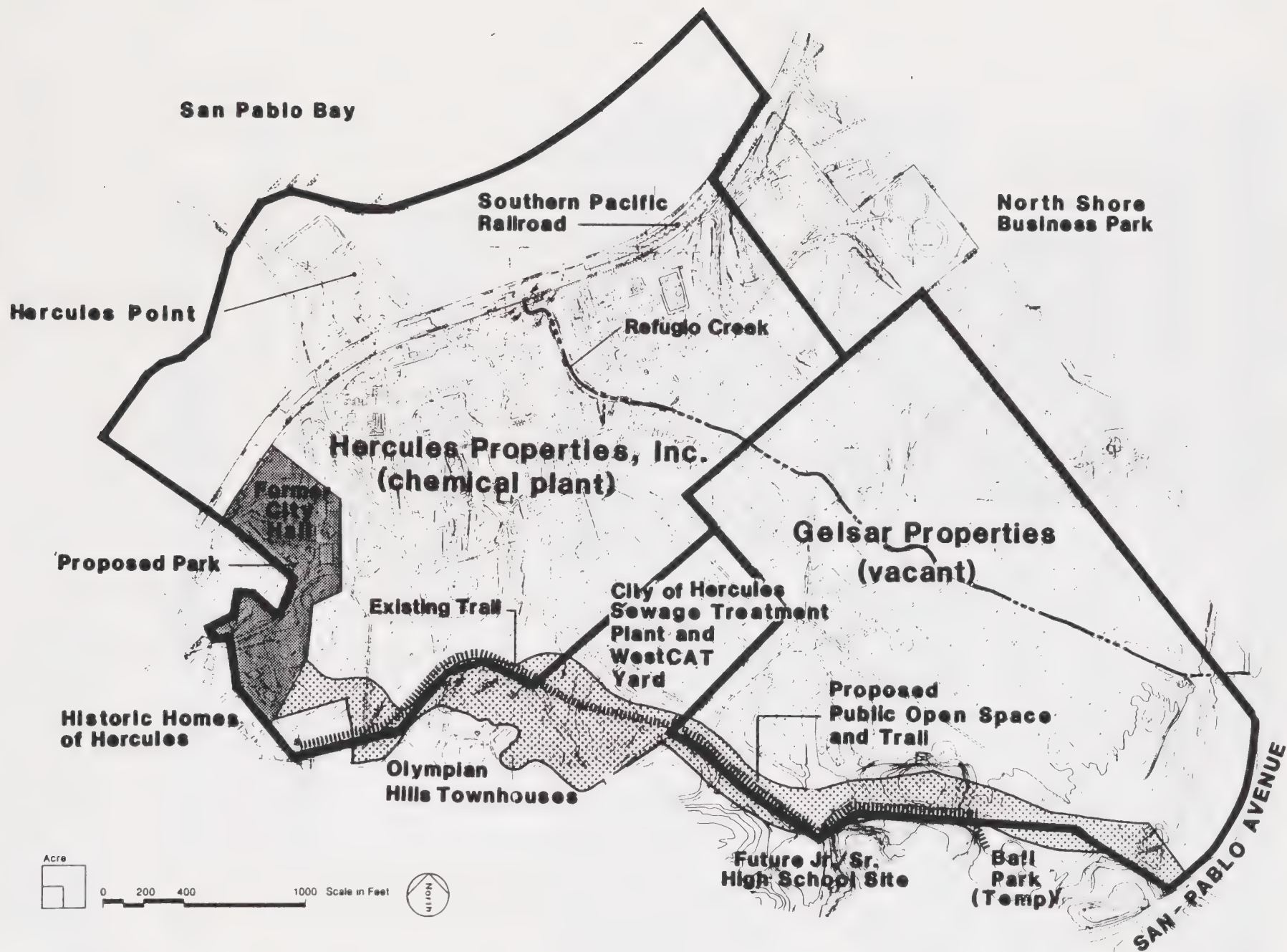
The remaining 60 percent of the SPA, parcels owned by Hercules Properties, Inc., incorporates the Hercules Chemical Plant (the former Hercules Powder Company) and the historic company town and residences along Railroad Avenue. The City Hall and the Police Station were previously located here; the Hercules Properties, Inc. headquarters and the former Hercules Powder Company clubhouse (now under renovation) are located here. The City Hall and Police Department moved to the new Civic Center in July, 1987. The town center is a unique cluster of historic buildings and grounds which sits on a hill overlooking the bay and the chemical plant site.

Although production at the Hercules Chemical Plant was largely phased out in 1977, almost all the equipment remains. Several businesses have moved to the site without the benefit of an overall development plan. They include a variety of storage, distribution and manufacturing operations (Appendix A). Existing land use regulations affecting the site are not sufficient to prevent these uses from becoming a precedent for future unregulated development. In addition, several of these uses are in violation of the City's construction and land use codes. Other portions of the plant site include nonfunctioning components of the former gunpowder and fertilizer operations and are a significant visual blight. Clearly this area, because of current lack of development as well as its attractive location adjacent to the bay, presents significant future development opportunities.

Assessment of the Existing Hercules Chemical Plant

In response to the Hercules Properties, Inc. interest in the reuse of the existing plant equipment, an in-depth assessment of the plant's potential was conducted as part of the Hercules Properties, Inc./Gelsar Specific Plan.

As mentioned previously, the chemical plant on the SPA was used for the production of explosives and other chemical compounds for nearly 100 years. As part of the Specific Plan process, the consultant team surveyed the plant facilities to determine the feasibility of starting



Hercules Properties Inc/Gelsar

Existing Land Use and Ownership

Specific Plan

Figure 3.1

up all or a portion of the plant (Appendix C). Judgments were based on visual inspection and professional knowledge of opportunities and problems in using chemical process equipment that has been shut down for long periods of time.

In the course of the overall analysis, a variety of potential uses for the existing plant equipment were considered. These included:

- nitrogen tetroxide production (new and reprocessing)
- production of mixed alcohols
- methanol production
- power generation from municipal wastes
- gasification of coal, petroleum coke and biomass
- use of the prill tower for solar energy application

Of these, only production of nitrogen tetroxide and mixed alcohols appear to be reasonably practical for using the existing equipment. The nitrogen tetroxide would be sold under military contract for rocket fuel applications. Nitrogen tetroxide production could utilize some of the existing vessels previously used in this service. Production would likely be moved out of the nitric acid facility, which is in poor condition, to a different part of the site. Since production of this product is quite specialized and unique, manufactured for sale only under a Federal government contract, the economics of production are likely to be good.

Production of mixed alcohols could be accomplished by combined use of the existing ammonia plant reformer and the methanol plant synthesis loop and compression facilities. The economics of the situation would be questionable and complex depending on the cost of refurbishing the plant units, the sales price of the product to a local refiner (or gasoline marketer), development of a market for the product, and the cost of the natural gas feedstock. Methanol production alone would not be economically feasible in this small plant. However, mixed alcohols represent a significantly higher value product for gasoline octane enhancement, especially as part of a developmental project. Other options mentioned do not appear at all economically feasible. The use of the overall site was also considered for other uses such as for catalyst development work or as a large research and development complex as well as for other applications.

In summary, the plant equipment that is in reasonably good condition (Figure 3.2) includes:

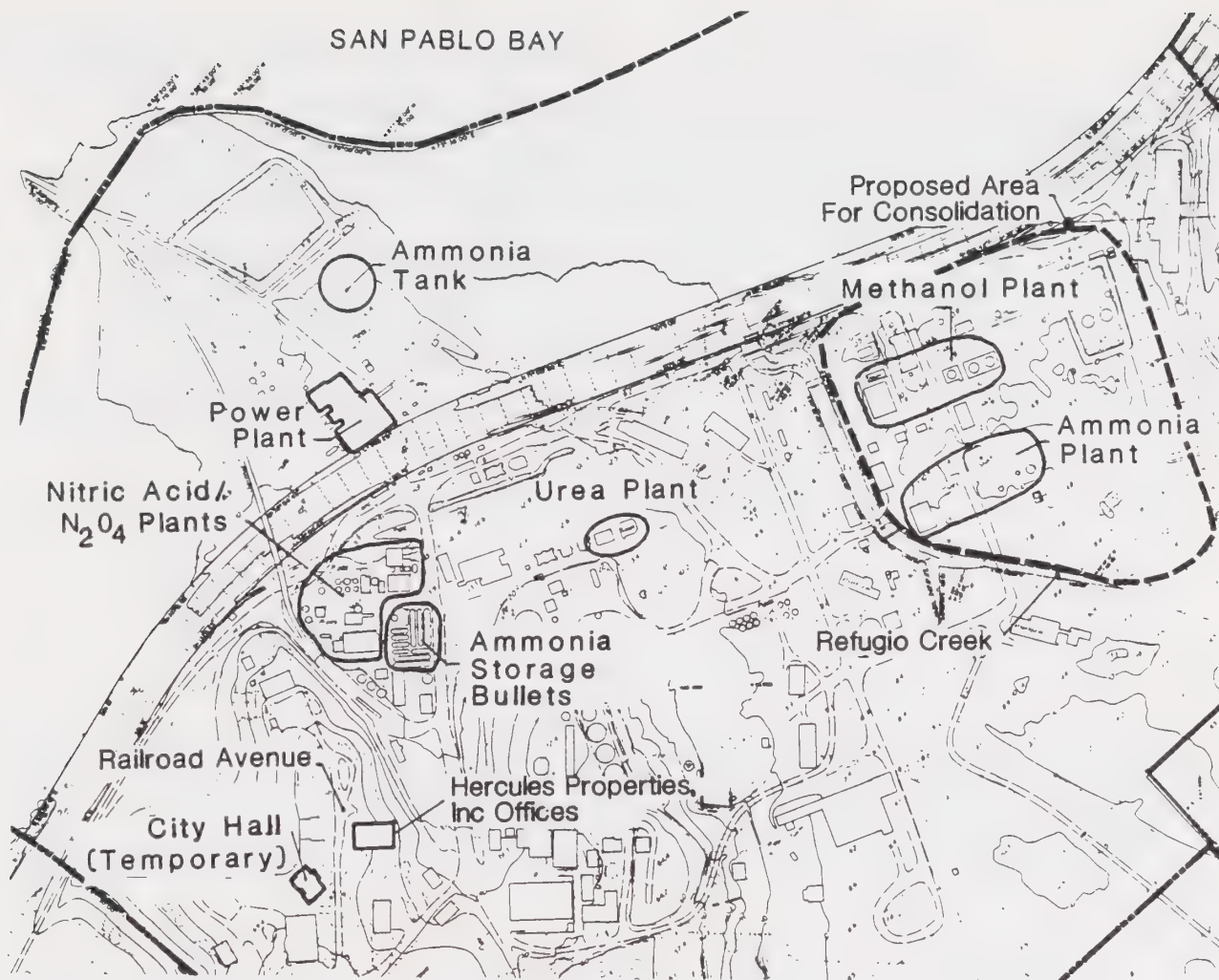
- the ammonia storage "bullets"
- the methanol plant (excluding the reformer)
- the ammonia plant reformer
- at least two columns in the nitric acid/nitrogen tetroxide plants

Equipment that can possibly be reused includes:

- the large ammonia tank on the point (with considerable modification)

Unusable equipment includes:

- the remainder of the nitric acid plant
- the urea plant (except for possibly one reactor and one compressor)
- the power plant on the point



The Hercules Plant Site

Source: SFA Pacific

Figure 3.2

Of the proposed uses for the existing equipment, two uses are potentially viable:

- manufacture of nitrogen tetroxide (to fulfill possible a military contract and to demonstrate a new process); the proposed manufacture of nitrogen tetroxide can be accomplished without being hazardous to the community because of long experience in handling this material and the relatively small scale of manufacture envisioned.
- manufacture of mixed alcohols as gasoline additives (this application would also be aimed at demonstrating new technology); high-pressure methanol manufacture has long been practiced without adverse effects on surrounding communities; the production of higher alcohols would also not be hazardous.

Both of the above use options assume that good plant safety practices are followed and industry codes are met.

Long-term possible uses of doubtful economic viability include:

- methanol
- biomass processing
- municipal refuse processing and power generation
- coal gasification development
- solar tower technology development

The equipment necessary to the two most viable plant reuse alternatives could be consolidated in a single location northeast of Refugio Creek on the existing plant site (Figure 3.2). This would permit the removal of all remaining outdated facilities and a general clean-up of a major portion of the plant site. Re-use of relocated plant equipment would be subject to design guidelines set forth in this Specific Plan.

3.1.2 Regional Land Use

The SPA is located within the rapidly growing Interstate 80 corridor in the North East Bay region. Office, research and development and light industrial uses are expanding; heavy industrial use is declining. In response to these developments, and as a result of its relatively close proximity to San Francisco, the region has also experienced a significant amount of residential development. Several major retail and commercial centers also serve the region. They are the mall complexes at Hilltop, Pinole Vista and El Portal.

The East Bay Regional Parks District, through a joint powers agreement with the California Division of State Parks, provides many opportunities for recreation and open space. The development of regional linkages between the components of this recreation and open space system is now underway.

Land uses in the immediate vicinity of the SPA are varied (Figure 3.1). The North Shore Business Park, which is adjacent to the northern boundary of the SPA, includes both R&D and light industrial uses. Several residential developments--Olympian Hills Townhouses and Historic Homes of Hercules are located to the south and west of the SPA. A paved regional trail links the historic "company town" center with the temporary Little League fields, which are situated on a site designated for a new Junior-Senior High School facility.

3.1.3 Regulatory Authority

Current zoning designations for the SPA are Industrial (M) and Commercial-Industrial (CM) (Figure 3.3). These regulations currently permit a complex set of land uses. In addition, a Historic Overlay Zone delineating the limits of the Hercules “company town” overlaps a portion of the SPA. As a separate undertaking concurrent with the specific planning effort, the City has contracted for an analysis of its industrial zoning ordinance. The Hercules Properties, Inc./Gelsar Specific Plan will revise the Neighborhood 7 Plan in the Specific Plan Area. The relationship between this Specific Plan and the General Plan is delineated in Chapter 6.

In addition to the City of Hercules, many other agencies have authority over future development on the site. They include:

- California Department of Fish and Game (streambed alteration permits)
- U.S. Fish and Wildlife Service (review of wetlands mitigation plans)
- U.S. Army Corps of Engineers (approval of wetlands alteration/mitigation plans, including diked historic bay lands)
- National Marine Fisheries Service (review of wetlands and streambed alterations/mitigation plans)
- Environmental Protection Agency (hazardous waste)
- Bay Conservation and Development Commission (BCDC) (jurisdiction in shoreline areas 100 feet inland of mean high water)
- Bay Area Air Quality Management District (daily air quality standards)
- Regional Water Quality Control Board (sediment testing for stream relocation)
- California Division of Health Services (hazardous waste)

It should be noted that BCDC has recently recommended the reclassification of its “water related industrial” zones in their land use plan. A possible future preference for public access in these areas has been indicated (Jeff Blanchfield, personal communication). Due to the complicated regulatory framework for the Specific Plan Area, future development requires a well-coordinated planning implementation process. This process is defined in Chapter 8.

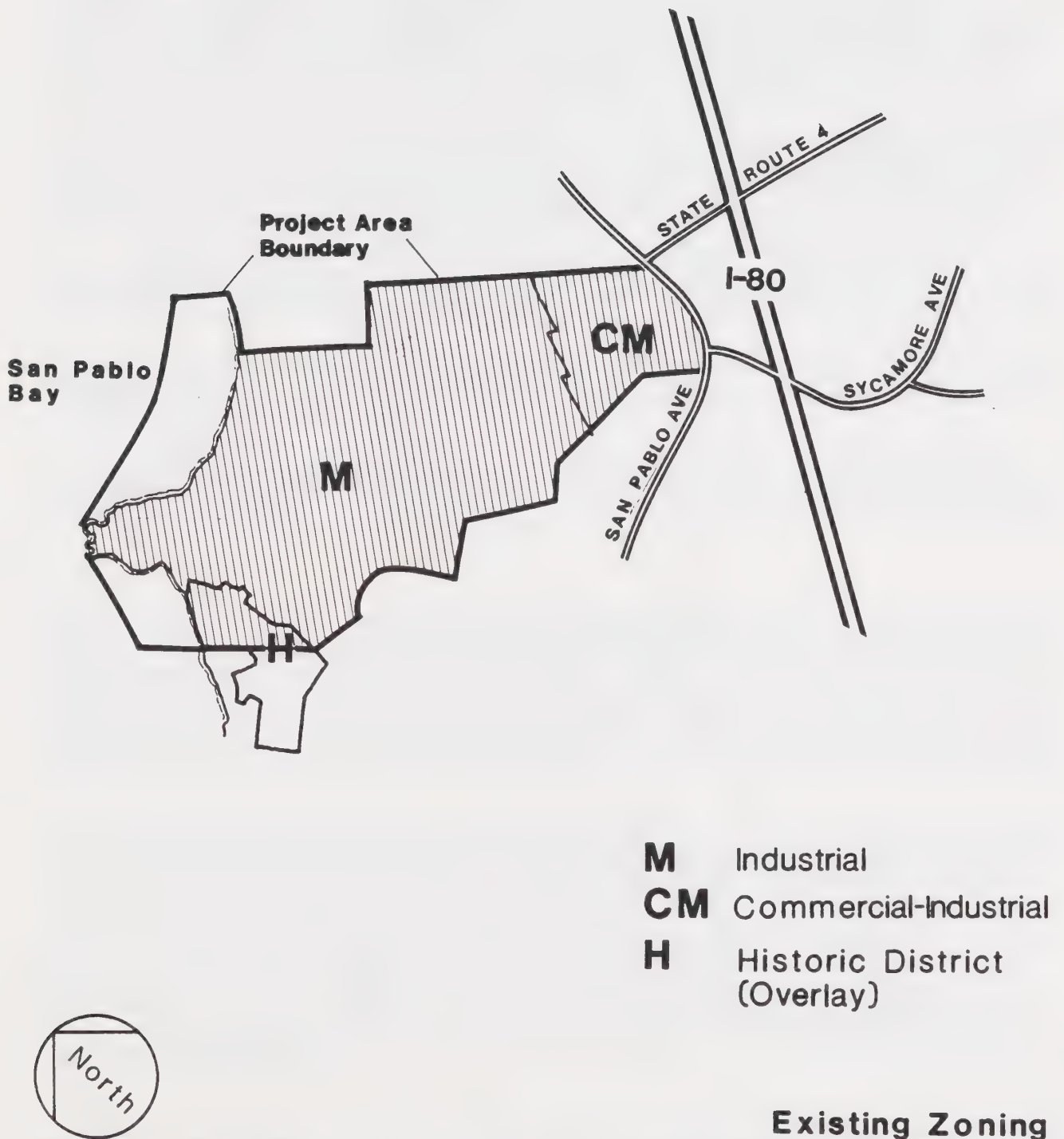
3.2 INFRASTRUCTURE

3.2.1 Traffic and Circulation

Circulation System

The existing circulation network within and adjacent to the SPA is shown in Figure 3.4. As previously mentioned, except for a short section of Railroad Avenue which provide access to the current temporary City Hall and its immediate surroundings, most of the SPA is accessible only by unimproved and/or private roads. Access to the existing sewage treatment plant is provided by an extension of Sycamore Avenue from the intersection at San Pablo Avenue. A network of private streets off Railroad Avenue provide access to the old chemical plant area. Alfred Nobel Drive and Linus Pauling Drive dead end at the northern boundary of the Plan Area.

Interstate 80 and State Route 4 are regional highways linking the City of Hercules to other cities in the Bay Area. Interstate 80, a 6-lane freeway, is a major commute route connecting east and north bay cities to employment centers in the San Francisco and Oakland area. State Route 4



Source: Hercules General Plan

Figure 3.3

provides linkage between communities in western and central Contra Costa County. That portion within and adjacent to the City of Hercules is only a two-lane expressway at the present time but, ultimately, will be upgraded to a full freeway.

The interchange at Interstate 80 and Route 4 is configured in such a way that some of the ramps provide direct highway-to-highway connections, while others provide access to city streets (see ramp detail in Figure 3.4). For most of the existing residential developments in the City of Hercules and the SPA, this interchange represents the most convenient and widely used access point to Interstate 80. This interchange does not provide for all freeway to freeway movements between Interstate 80 and Route 4; the westbound Interstate-80 to eastbound Route-4 movement will be built as part of a planned reconstruction of the interchange.

San Pablo Avenue, which runs in a generally north/south direction along the eastern boundary of the SPA, is a major arterial roadway with two lanes in each direction plus turn lanes at major intersections. The street runs parallel to Interstate 80 from Oakland to Crockett and is often used as an alternate route when the freeway is congested.

The two intersections along San Pablo Avenue, at John Muir Parkway and Sycamore Avenue, are the major access points for the SPA. It is anticipated that almost all of the future traffic will enter or leave the SPA through these two intersections.

Sycamore Avenue is a 4 lane arterial street connecting the developments east of Interstate 80 to San Pablo Avenue and the SPA. It is also the principal access road to Interstate 80 and the most heavily travelled street in the City.

John Muir Parkway, Alfred Nobel Drive, and Linus Pauling Drive currently provide access to the North Shore Business Park and Bio-Rad developments. These streets will be extended into the SPA to form an integrated circulation system.

Traffic Operations

The proximity of the SPA to two regional highways, Interstate 80 and State Route 4, offers a high level of accessibility that is essential for commercial developments. At the same time, the single interchange which serves both highway-to-highway connections and local access presents a significant constraint to traffic movements. In anticipation of future developments which would demand better freeway access, both Caltrans and the City of Hercules are beginning to investigate improvement alternatives to both this particular interchange and the overall city-wide circulation.

Three intersections are most critical to development in the SPA. They are the two intersections along San Pablo Avenue at John Muir Parkway and Sycamore Avenue, and the intersection at Sycamore/Bayberry. The last intersection is considered critical because all inbound traffic originating from I-80 south must exit the freeway at Bayberry and turn to Sycamore to reach the Specific Plan Area. Of the three critical intersections, only the intersection of San Pablo/Sycamore is currently signalized. The design of the signalization of the other two intersections is presently underway, but they are presently controlled by all-way stops. The existing peak hour volumes are shown in Figure 3.5. Under existing traffic conditions, all three intersections are operating at level of service "A" (A description of the level of service concept is provided in Appendix B).

LEGEND

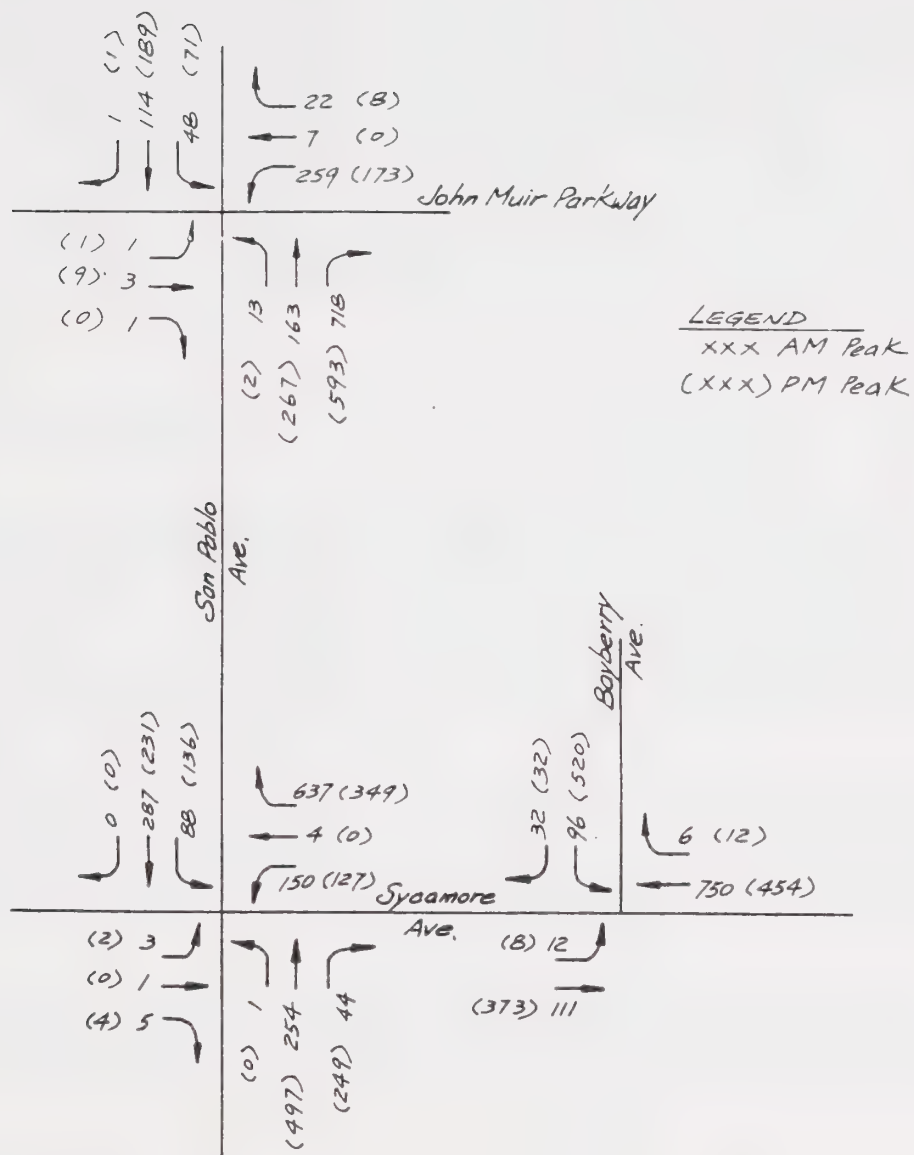
- === Freeway
- Other Public Road
- Freeway Ramp
- Unpaved or Private Road
- ┐ Stub End
- Cul-de-sac



Existing Circulation Network

Source: JHK Associates

Figure 3.4



Existing Peak Hour Volumes

Source: JHK Associates

Figure 3.5

Transit Services

There are currently no fixed-route transit services within the SPA. However, there are two bus routes operated by AC Transit on San Pablo Avenue with bus stops located in a Park-and-Ride lot near the intersection of San Pablo/Sycamore. Route 70A runs during weekday daytime hours between El Cerrito and Crockett with a headway of one hour. BART Express Route J runs only during commute hours and provides connection to the Del Norte Station in El Cerrito. Also available is the van service provided by West Contra Costa County Transit Authority (WestCAT). Its service area includes Pinole, Montara Bay, Rodeo, Crockett, and Port Costa as well as Hercules. WestCAT is in the process of converting most of its "Dial-A-Ride" service to fixed routes. The proposed local routes could be easily modified to provide service to the Specific Plan Area. Proposed changes in BART Express Bus Service will increase the frequency of J buses on San Pablo Avenue, past the Specific Plan Area, throughout the day.

3.2.2 Utilities

The City of Hercules is served by both the Hercules-Pinole sewage treatment plant and the Hercules sewage treatment plant.

At the present time, the Specific Plan Area (SPA) is served by both the Hercules-Pinole and the Hercules sewage treatment plants, which have a combined capacity of 2,570,000 gallons per day attributable to the City. Sewer capacity in the Hercules-Pinole plant to serve anticipated development within the SPA was purchased by the landowners in 1983 through an assessment district. If additional capacity is needed, the Hercules plant can be expanded by 1 to 2 million gallons per day; however, the existing force main and outfall may not be large enough to handle that additional capacity. Depending on the level of development proposed, further study will be required to assess this expansion potential.

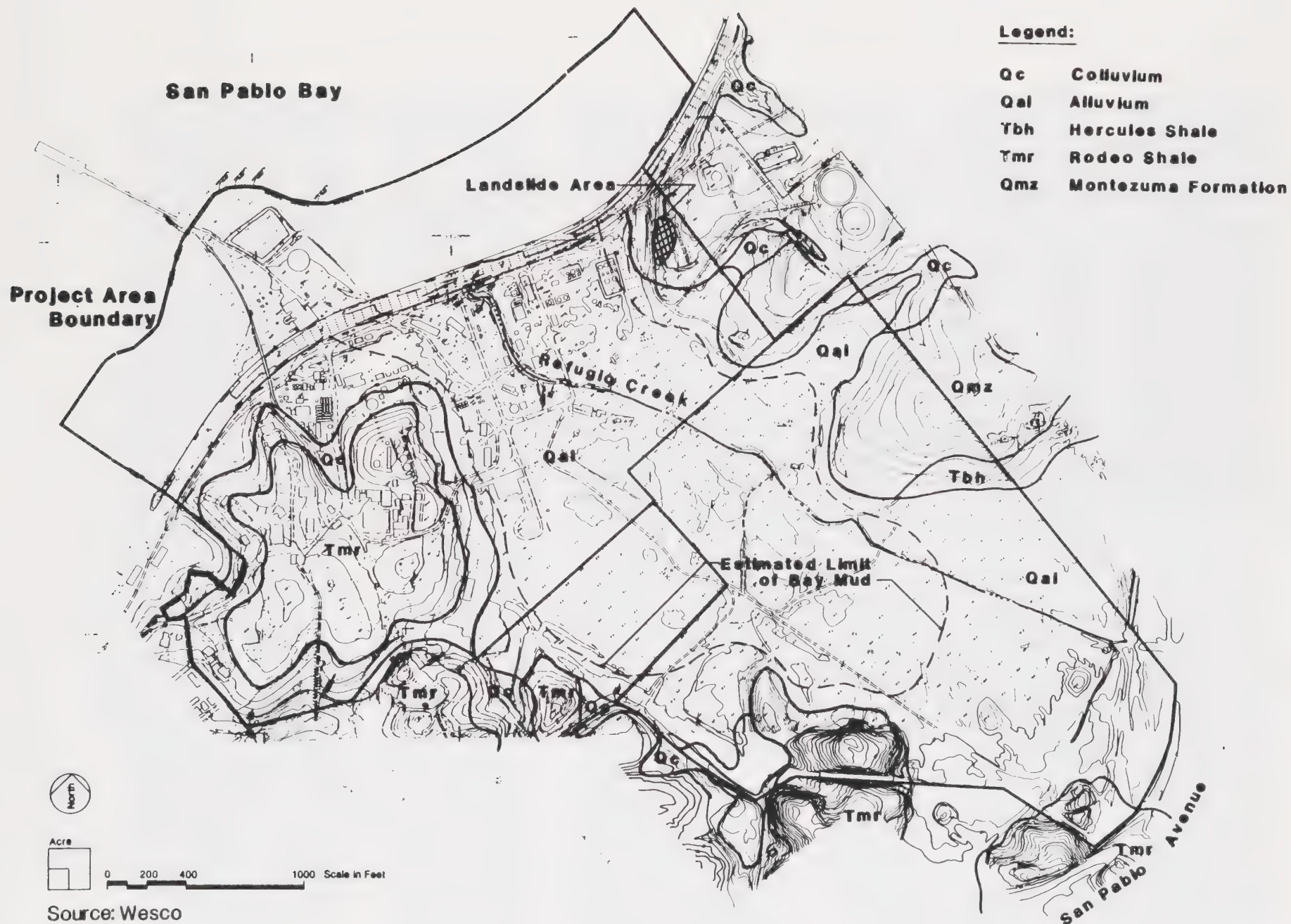
Solid waste from the SPA is handled by the Richmond Sanitary Service, a private disposal company. This service uses the West Contra Costa Landfill, which will reach its capacity in five to six years. Alternative disposal sites and a resource recovery program are being considered; however, it is likely that development proposed for the SPA will significantly effect the service's long range master plan.

Water service to the SPA is provided by East Bay Municipal Utility District. Electricity is provided by Pacific Gas and Electric; two overhead 115 KV transmission lines now serve the Hercules Chemical Plant through the adjacent residential area. Telephone service is provided by Pacific Bell.

3.3 ENVIRONMENT

3.3.1 Geology, Landform and Soils

An extensive amount of preliminary geotechnical investigations of the Hercules Properties, Inc., Gelsar, and adjacent properties have been completed by Berlogar, Long and Associates for site planning purposes (References 2, 3, 4, 5). The following pages summarize the findings and recommendations contained in these reports. Also included is a geologic map of the SPA (Figure 3.6), compiled by WESCO in 1984 from available published and unpublished map sources (References 9, 10, 11, 12, 13).



Hercules Properties Inc/Gelsar

Geology of the SPA

Specific Plan

Figure 3.6

The Specific Plan Area lies within the lower portion of Refugio Valley and includes tidelands on eastern San Pablo Bay. Overall relief within the limits of the SPA area is about 80 feet, with the tidal mudflats of San Pablo Bay having elevations of about -2 feet mean sea level, and ridgeland on the northeast boundary elevations of about 78 feet. The ridgeland along the western boundary have an elevation of 69 feet. These higher elevations occur along the periphery of the site, forming a funnel-shaped valley opening onto the bay.

The valley floor is relatively flat and is underlain by alluvium. The western portion of the valley is capped by a few feet of fine-grained flood plain alluvium and is underlain by highly compressible "Bay Mud" deposits. The Bay Mud has an estimated thickness of about 35 to 40 feet along the western edge and thins out up-valley, where it transitions to deposits of clays, silts, sands, and gravels. The clays and silts are moderately to highly expansive. A relatively thick silty clay layer occurs at depths of 7 to 10 feet and provides a perching layer for water in the valley, contributing to a high groundwater table.

Much of the valley floor is covered by loose, artificial fill material. The older fill materials were placed during operations of the Hercules Powder Company and primarily consist of soils and bedrock material excavated from adjacent hillside areas. They are not well compacted. In places, the fill material is more rubbly, containing bricks, asphalt and concrete, glass, wood debris, and timber. These fill materials provide poor foundation conditions.

The bedrock units exposed on the hills above the valley consist of the Briones Sandstone and Rodeo Shale on the south, and Montezuma sand and gravels overlying the Briones Sandstone and Hercules Shale on the north. Test pits have revealed generally cemented, hard, massive sandstone with backhoe refusal encountered in places as shallow as 2 to 8 feet. Some softer, friable, uncemented sandstone was revealed in test pits in the northern portion of the area. Very hard fossiliferous sandstone beds as thick as several feet were apparent as local interbeds within the Briones Sandstone. No significant bedrock fracturing has been observed. In some areas, however, the shale is fractured into fragments less than one inch across. Highly weathered rock is susceptible to shallow landslides; this condition occurs on the low grassy hills immediately adjacent to Refugio Creek Valley.

Slopewash and colluvium overlie the bedrock. These deposits consist of silty clays to sandy clays with variable amounts of rock fragments, transported down slope and deposited in swales and along the base of steeper slopes and ravines. These colluvial deposits range in average thickness from 5 to 20 feet. In many places they grade gradually into the alluvial materials of the valley floor. The colluvial soils may be susceptible to slumping and erosion on steep slopes. A relatively small landslide occurs on the northwest portion of the SPA within the Montezuma Formation materials.

The SPA is located in the San Francisco Bay area, which is recognized by geologists and seismologists as one of the most active seismic regions in the United States. Historically, destructive earthquakes in the San Francisco Bay area have been associated with crustal movements along well-defined active fault zones. The active Hayward Fault Zone is about 5 miles west of the project site. The San Andreas Fault Zone is about 23 miles west of the project site. Other active faults include the Concord and Green Valley faults, located about 12 to 15 miles northeast of the site, and the Calaveras Fault whose north terminus is about 22 miles southeast of the site. Other significant faults whose activities are not well known at the present time, include the Pinole Fault, which skirts the project site approximately 1/2 mile to the southwest, and the Franklin Fault, located about 3 1/4 miles to the northeast. No evidence of recent or active faulting has been observed in the Refugio Valley Area.

Development Issues

The SPA contains soils and geologic units which possess slight to moderate constraints to development. These constraints consist of clayey soils with high expansive potential, highly compressible bay muds which afford poor bearing strengths, uncompacted fill materials with undesirable engineering properties, boggy areas with high groundwater tables, and potential unstable and erosive slope deposits and landslide debris. Development will require fill removal, importation and engineered placement of controlled fill, provision of subdrain structures, and grading, and terracing of slopes.

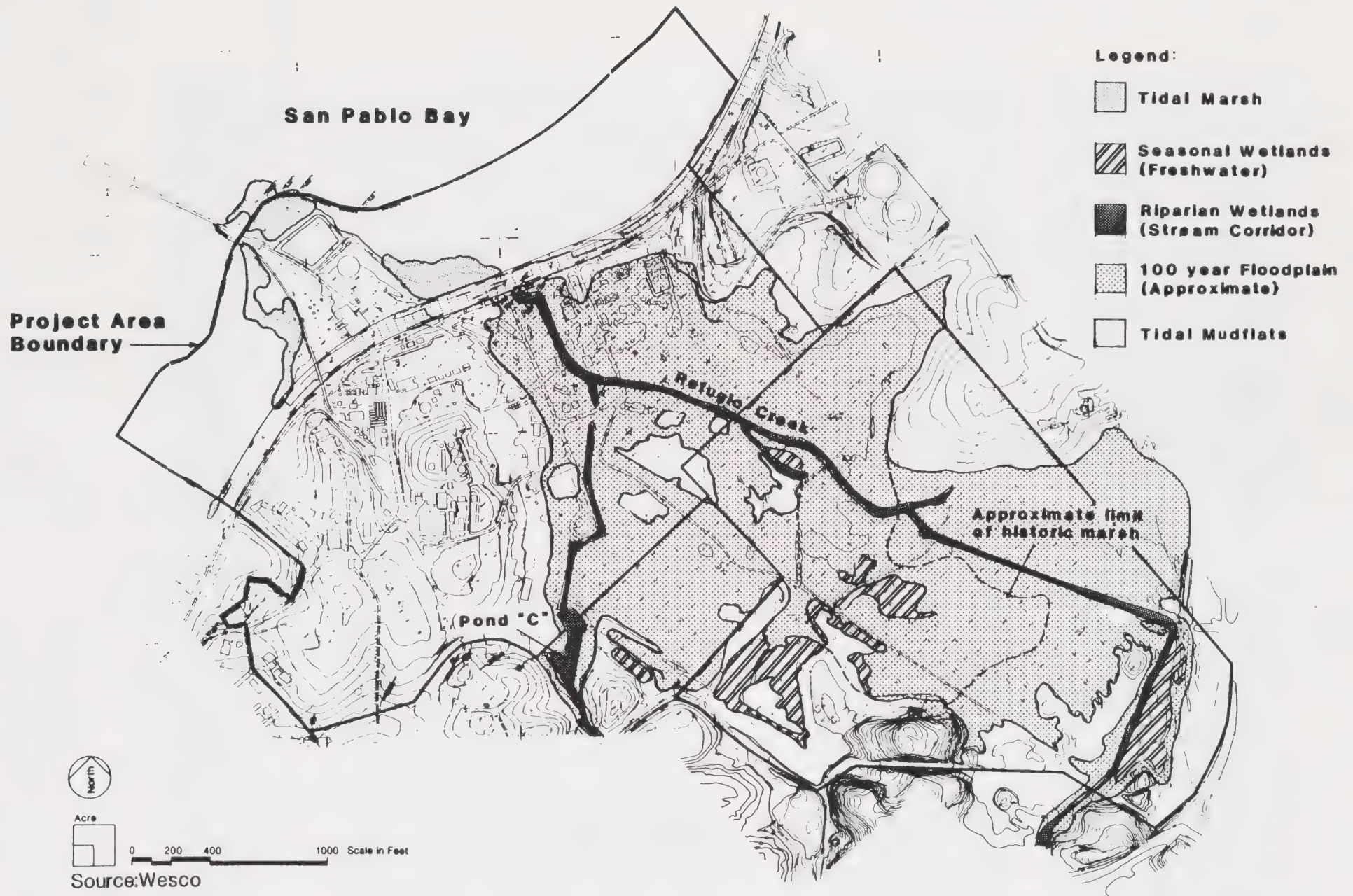
Potential seismic hazards for the SPA consists of ground shaking, liquefaction, lurching, and landsliding. Fault rupture is considered very remote. Strong ground motion may occur within the life of most structures being considered for the SPA. This hazard cannot be eliminated, but the current building code provides standards for construction which would minimize structural damage due to shaking. The potential for soil liquefaction applies particularly to saturated sand deposits. Although such deposits may underlie the SPA at depth, placement of compacted fill on the valley soils should significantly reduce the risk of damage.

3.3.2 Hydrology

Refugio Creek drains the SPA, flowing northerly to San Pablo Bay (Figure 3.7). The creek is thought to be tidally influenced throughout nearly its entire course on the Bay side of San Pablo Avenue. However, Refugio Creek is not in its natural channel, apparently having been straightened, deepened and channelized by the former Hercules Powder Company property owners in the early 1900's.

The creek extends south and east up Refugio Valley approximately 3 miles east of San Pablo Avenue and Interstate 80 and drains a watershed of about 800 acres. Only limited data is available on water quality in Refugio Creek. They indicate the water to be saline-alkaline at the Bay, decreasing in salinity gradually upstream as tidal influence lessens and surface water runoff become more influential in the San Pablo Avenue area. Recent work by BCL Associates (1986) as well as investigations completed by WESCO in 1983 and 1984 indicate the presence of oil and grease and low levels of some heavy metals occurring in the creek in its lower part, although nutrient and heavy metals levels are generally within biologically acceptable limits. Contaminants, such as oil, grease and heavy metals may have entered Refugio Creek not only from historic munitions plant activity, but also from urban runoff from the rapidly developing watershed area southeast of Interstate 80.

The SPA is relatively flat and low-lying with seasonal ponding occurring on parts of the Plan Area. The highest tide of record is approximately 7.2 feet, although nearly all of the property is protected from tidal flooding by the railroad grade, which provides an effective tidal dike. However stormwater flooding of Refugio Valley can and does frequently occur, particularly during heavy rainfall-runoff periods coincident with high tides in Refugio Creek. This causes a backwater effect, precluding effective floodwater discharge of Refugio Creek to San Pablo Bay. Extensive flooding of Refugio Creek occurred during the January 1983 severe storms, with Refugio Creek spilling its banks. Because of this, approximately 175 acres of the SPA lies within the A-1 (100 year) Flood Zone, as designated on the Flood Insurance Rate Maps produced by the Federal Emergency Management Agency (Figure 3.7). The 100 year flood elevation for this area, as determined by FEMA, is 7.0 feet.



Hercules Properties Inc/Gelsar

Hydrology and Wetlands

Specific Plan

Figure 3.7

A tidal slough or tributary drains a small watershed area on the west side of Refugio Valley. The tidal slough originates above Pond C, a roughly one acre pond previously used as an industrial water supply source and wastewater conveyance system during early operations of the Powder Works Plant. Previous sampling and monitoring of water quality and sediments in the immediate Pond C area indicates the area to have biologically acceptable water quality although little is known about the water quality and sediment chemistry downstream from the Pond. Some hazardous waste site clean-up work has been completed around and downstream from Pond C associated with the D&S Properties' development of the Olympian Hills Townhouses (WESCO, 1983). Some monitoring and analysis will likely be required as the proposed realignment of Refugio Creek, including a wetlands mitigation area, is routed through Pond C and the tidal slough.

Groundwater underlies Refugio Valley at relatively shallow depths. There are likely several distinct water bearing zones in the bedded sediments in the valley, including a very shallow, but discontinuous perched zone. Groundwater in the very shallow zone may be as shallow as 6 inches deep in the winter months of wet years. Throughout the valley, and depending on elevation, the winter water table is typically less than 2 to 3 feet deep, and declines to 5 to 6 feet during most summer months. Refugio Creek is thus fed by tides and winter surface water runoff during winter months and by groundwater discharge during the summer months. Monitoring and water quality analysis completed by WESCO (June 1983) indicate the shallow groundwater to be brackish and non-potable, but also not significantly affected by previous industrial uses of the properties.

Development Issues

Flood hazards, ponded conditions, and a high groundwater table necessitate that flood control and drainage provisions be implemented in the SPA. These include provisions to keep finished floor elevations above the 100-year flood plain elevation, installation of subdrains and re-alignment and widening of Refugio Creek. Flood control is technically feasible within Refugio Valley, however the final channel design requirements are currently being discussed with County Flood Control personnel. The re-alignment of Refugio Creek will require a streambed alteration permit from the California Department of Fish and Game, as well as approval from the Corps of Engineers in consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service. Conditions of the permit will probably require restoration of a riparian corridor along portions of the Creek, as well as the design of stream bottom conditions to permit continued use as an anadromous fishery (FWS Wetlands Policy, Oct. 1986; CDFG Wetlands Policy, 1987). Informal approval has apparently been reached with the California Department of Fish and Game in regard to the necessary permit, provided that the Department of Fish and Game has continuing input on the final design and mitigation requirements (KCA Engineers). A letter from the Acting Director of the Department was received by the City during draft review of this specific plan (September, 1987). The plan text in Chapters 3, 5 and 7 was revised in response to this letter, and a policy on wetland replacement was added in Chapter 8.

3.3.3 Biological Resources

The SPA encompasses tidal mudflats, low-lying marshlands, seasonally flooded valley lands, freshwater and brackish water ponds, the tidally influenced Refugio Creek and its associated riparian corridor, and valley and upland grasslands. Many of these habitats, including the widely encompassing definition of "wetlands," are protected by state and federal guidelines, policies

and legislation. Portions of these habitats have been disturbed, particularly in the Chemical Plant area. Fish and wildlife, including migratory waterfowl, an anadromous fishery and a variety of upland species utilize habitats within the SPA. As part of the planning study, an inventory of the biotic resources of the SPA was undertaken.

Delineation of wetlands boundaries using Army Corps of Engineers procedures and identification of endangered species habitat were the primary focus of the efforts, with the objective to identify biological/regulatory constraints to land uses, and required mitigation measures.

Wetlands Inventory Methodology

Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions (COE 1986). Wetlands generally include swamps, marshes, bogs, seasonal ponds, and similar areas. A proposal for development on sites where wetlands are present requires review and/or permit approval by several government agencies, including the Corps of Engineers, U.S. Environmental Protection Agency, U. S. Fish and Wildlife Service, California Department of Fish and Game, and the National Marine Fisheries Service and preparation of a mitigation plan to restore, rehabilitate, or replace lost habitat of similar kind.

Wetlands were delineated on a map (1":100') from data gathered during field surveys on June 17 and July 8, 1986. The methods used to delineate wetlands relied on Army Corps of Engineers (COE) criteria outlined in their wetlands delineation manual (COE 1986). This approach was used because COE has permit authority over areas classified as wetlands under Section 404 of the Clean Water Act. The manual outlines methods for assessing whether a site possesses the hydrologic, soils, and vegetational indicators required to consider an area as wetland. Absence of any one of the indicators eliminates the site from classification as a wetland (Corps of Engineers, Technical Report Y-86, Page 14). National Wetland Inventory Maps (FWS 1986; 1:24,000 scale) were also assessed for preliminary identification of the types and locations of wetlands. On August 4, 1986, Vicki Reynolds of the COE and Carl Wilcox of the California Department of Fish and Game visited the site to comment on concerns the agencies might have regarding the wetland map developed by WESCO. The U.S. Fish and Wildlife Service was also invited to attend but declined because of lack of available staff time; however, they indicated they would rely on consultant, COE, and DFG field data for their review purposes and wish to keep posted on study progress. Subsequent discussions indicate they have "informally" concurred with the consultant's wetland delineations and assessment of mitigation requirements.

Rare and Endangered Species

Literature was reviewed and agencies contacted for information regarding rare and endangered species which can occur in habitats found at the project site, including the 1984 California Native Plant Society Inventory of rare and endangered plants of California, Special Publication No. 1, and the 1986 California Natural Diversity Data Base Quad occurrence species list, Natural Heritage Section, California Department of Fish and Game. Two plant species, soft-haired bird's beak (*Cordylanthus mollis* spp. *mollis*) and Mason's lilaeopsis plant (*Lilaeopsis masonli*) were found to have the potential for occurrence in wetlands at the project site. Surveys for these species were conducted during the wetland mapping which took place on June 17 and July 8, 1986. Carl Wilcox of the DFG visited the site on August 4, 1986 for input regarding the potential for rare and endangered species were encountered during field surveys, and Mr. Wilcox indicated that rare and endangered species were not an issue at the site.

In addition, approximately 39 acres of submerged lands in San Pablo Bay are owned by Hercules Properties, Inc. and are part of the SPA (Figure 3.8). Some 11.6 acres of seasonal freshwater wetlands, 4.5 acres of tidal salt marsh, and 5.0 acres of tidal mudflats were identified during the resource inventory. The tidal salt marsh and mudflats occur west of the Southern Pacific Railroad.

There is also an extensive area of diked historic baylands as inferred from the Nichols and Wright map of Historic Marshlands of San Francisco Bay (Nichols and Wright 1971). Diked historic baylands are historic wetland areas, now separated from tidal influence by dike systems. They have a wide variety of water regimes and vegetation, and are thought to provide an extensive, diverse, and important wildlife habitat where adjacent to the bay and wetland areas. The Bay Conservation and Development Commission (BCDC) has produced a series of reports on the extent, ecological value, regulatory authority, and methods to restore Diked Historic Baylands (BCDC, 1982a, 1982b, 1983a, 1983b). Both BCDC and California Department of Fish and Game are provided the opportunity to review and comment on development plans within diked historic bayland areas as a result of the requirement for the Army Corps of Engineers to consult with State and Federal Agencies on projects involving the Coastal Zone Management Program (16 U.S.C. Sec. 1451 et seq.) and (40 C.F.R. Sec. 230.10 (a)(5)).

The seasonal freshwater wetlands consist of many small, isolated, undrained depressions within the valley which pond rainfall during the winter months. The largest of these are less than about one acre in size. Because of the relatively high groundwater table within the valley, these ponds remain saturated or moist throughout the year, and support such typical freshwater wetland plant species as common cattails, reed grass, sedges and rushes, and occasionally three square and alkaline bullrush.

Tidal salt marsh occurs in two bodies on the east and west side of Hercules Point, on San Pablo Bay. Surrounding the tidal saltmarsh and at lower elevations, generally less than about 0.5 foot mean sea level (msl) are the tidal mudflats, which are generally devoid of vegetation. These are areas which are inundated too frequently and for such prolonged periods that even tidal plants such as cordgrass cannot survive. Though devoid of vegetation, the tidal mudflats contain an abundance of benthic organisms, or small crustaceans, worms and bivalves. They are thus an important feeding area for birds frequenting the marsh, and are, therefore, protected habitats.

At higher elevations along the bayfront, which receive regular tidal flooding, are the cordgrass and pickleweed saltmarsh communities. Although partially degraded and disturbed in some areas, the tidal saltmarsh community is also biologically productive and important, and protected by state and federal conservation policies (C.O.E. Wetlands Policy, CDFG Wetlands Policy). A narrow upper marsh/upland transition zone contains saltgrass and saltbush species.

The tidally influenced and brackish Refugio Creek roughly bisects Refugio Valley. Well-developed riparian plant communities (largely willow thickets) occur only in the upper portion, near San Pablo Avenue. Refugio Creek is not in its natural channel, having been extensively altered and disturbed in the early 1900s. A western tributary, or tidal slough drains a one acre brackish pond (Pond C) but this system also lacks an important or well-developed riparian community.

Annual grasslands with scattered groves of eucalyptus trees provide the most extensive habitat within the SPA. The upland habitat surrounding wetlands is also an important and valuable part of a functioning wetlands ecosystem, as it provides food, cover and nesting, and prey areas for small mammals and birds, and escape areas during flooding.

Agency contacts, field reconnaissance and a literature review have indicated that rare and endangered plant and animal species are not an issue within the Specific Plan Area (personal communication, Carl Wilcox, California Department of Fish and Game). However, because the SPA does contain tidal salt marsh habitats and mudflats it is possible that the clapper rail (*Raullus longirostris*) and black rail (*Latralus tamarceus*) could be present. The clapper rail is listed by both CDFG and FWS as endangered (CDFG 1986, FWS 1983). The black rail is listed as threatened by the CDFG and is a candidate for federal listing. The rails forage and nest in tidal salt marsh habitats found around San Francisco Bay. Essential habitats have been located both south and north of the SPA but not within it (Gill 1979, FWS 1984a).

In addition, riparian plant communities along Refugio Creek provide potential nesting habitat for the salt marsh yellowthroat (*Geothlypis triches sinuosa*). The salt marsh yellowthroat is a candidate for protection in Category 2 under the federal law (FWS 1984b). This classification offers no legal protection for the yellowthroat or its habitat. It does indicate that existing information may warrant listing, but substantial biological information to support a proposed listing is lacking.

The salt marsh yellowthroat breeds only in fresh and brackish marshes surrounding San Francisco Bay. The closest known breeding population to the SPA is in Marin County along Corte Madera Creek (Foster 1977). Additional recorded locations include Suisun Bay, Carquinez Straits and Union City (Foster 1977). None are known from the SPA. Although the SPA does lie within the reported range of the endangered salt marsh harvest mouse (CDFG, 1986), habitat conditions in the SPA are not considered suitable for its occurrence.

Development Issues

Federal and State Regulation of Wetlands

The U.S. Army Corps of Engineers (COE) regulates activities in wetlands under authority based on Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Under the law, the U.S. Fish and Wildlife (FWS), the National Marine Fisheries Service (NMFS), and the California Department of Fish and Game (DFG) are required to be consulted by COE before issuance of a permit. When wetland development is regulated by COE, it sends its permits out for review by other federal and state agencies. The U.S. Fish and Wildlife Service (FWS) has a major role in assessing the adequacy of plans to mitigate impacts to wetlands. COE often incorporates FWS recommendations in the permitting process. Since the land uses and land-use patterns will likely require filling of wetland areas, a wetlands fill permit, accompanied by an appropriate mitigation plan will also be required. The permit application and plan must also demonstrate that there are no other feasible upland alternatives, and that wetlands fill is minimized. The major consideration for a wetland mitigation plan is to show there will be no net loss (of acreage or value, whichever is greater) of wetland habitat. Since many of the Refugio Valley wetlands are disturbed, small and isolated, and difficult to manage, incorporation of the small wetland bodies into one larger and protected wetland area may be biologically beneficial and could form a major basis of a wetland fill permitting rationale.

The Bay Conservation and Development Commission (BCDC) has jurisdiction in shoreline areas limited to a band measured 100 feet landward of the mean high water mark, be it from a natural shoreline or a dike. Within the SPA the limit is set by the railroad grade. Any proposed activities in this zone must comply with the San Francisco Bay Plan prior to issuance of a COE permit. In addition, BCDC has policies regarding activities in diked historic baylands which

must be considered by COE as required by the Coastal Zone Management Act. There is an extensive acreage of diked historic baylands, which occur from the bay's shore to a line projected north eastward from the Hercules sewage treatment plant. The BCDC will review plans for activities in these areas for consistency with their policies regarding diked historic baylands.

Refugio Creek

Relocation of Refugio Creek is an important element of the Specific Plan. Although Refugio Creek was apparently moved out of its original streambed location in the early 1920s, COE and DFG still have jurisdiction over this relocated creekbed and the adjacent riparian corridor. A streambed alteration agreement will be required by DFG.

There is currently a streambed alteration agreement between prior landowners and the State through the State Lands Commission (February, 1974). The agreement allows for another relocation of Refugio Creek in return for riparian planting along the Creek and the design and implementation of a tidal pond in the Pond C area. The agreement requires that the DFG have input into the final design of the creekbed. Figure 3.7 shows the current location of Refugio Creek; Figure 5.1 shows the proposed new location. Figure 3.8 summarizes the natural characteristics of the SPA.

Refugio Creek is a development constraint as well as a development opportunity. Its ultimate location will determine, to a great degree, the configuration of land uses within the SPA. Yet it also provides the opportunity to enhance the wetland habitat of the SPA as well as provide a significant open space amenity.

3.3.4 Hazardous Waste

The SPA was used for the production of dynamite and other explosives beginning in 1881, and by the entry of the United States in World War I in 1917, was producing 20 tons per day. An ammonia facility was built at the Hercules Powder Company plant in 1940 and production was expanded to include methanol, formaldehyde, and a urea-formaldehyde mixture between 1959 and 1966. The non-explosive fertilizer and industrial chemical compounds were manufactured at the plant site until 1977, when the plant was largely decommissioned.

Because of the extreme hazards involved with the production of explosives, the manufacturing, storage, packing and shipping facilities were not confined to the large bay-side plant, but were also scattered in small concrete buildings surrounded by earthen bunkers over nearly the entire 1300 acres controlled by Hercules Powder Company, including all of the Gelsar Properties and Hercules Properties, Inc. parcels. Several old concrete foundations and earthen bunkers still exist in the SPA. Because of accidental spillage at the many remote facilities and the primitive waste disposal and maintenance practices used at that time, explosive compounds, waste chemical by-products, and heavy metals contaminants were found widespread, but localized over these properties. Because some of the explosive compounds are considered to be carcinogens (cancer causing) (Rickert, 1982; Windholz, 1983) and are potentially flammable and explosive, areas possessing elevated levels of these chemical contaminants are considered to be hazardous waste sites, and require clean-up and remedial measures. Most hazardous waste areas are associated with bunker and foundation remnants, are easily locatable, and are typically less than



Hercules Properties Inc/Gelsar

Specific Plan

Site Characteristics Composite

Figure 3.8

0.5 acre in size. Preparation and implementation of remedial action plans for clean-up are required under Title 22 of the California Administrative Code (Section 66530(e)(2) and 66540(d), and California Health and Safety Code Section 25201). Clean-up and decontamination of these properties typically involves extensive, detailed soil sampling and analysis to identify the extent of contaminated soil, and excavation and transport of contaminated soils and waste materials to approved Class 1 Hazardous Waste Landfills. Extensive (and costly) groundwater contamination has not been identified as a problem with the SPA.

An extensive amount of work, including site investigations, preparation of remedial action plans, and actual site clean-up and decontamination has already been completed for the Gelsar and surrounding properties (i.e., North Shore Industrial Park) by WESCO (1983, 1985). Site investigation studies are in progress by BCL Associates (March, 1987) for the Hercules Properties Inc. site.

In part, because of the potential excessive costs associated with the clean-up and complete decontamination of properties in the Hercules area, two permissible levels of site clean-up were developed specifically for the Hercules area, and approved by the California Department of Health Services (CDHS). A clean-up level was established which allows some relatively safe levels of chemical contaminants to be left on site, but restricts land use to commercial and industrial uses. Housing and residential uses, hospitals, schools, and some outdoor eating establishments are precluded land uses at this clean-up level. Clean-up to a higher level, although more costly, allows unrestricted land use. Site clean-up levels were developed by WESCO in consultation and coordination with CDHS and the Environmental Protection Agency for the adjacent Bio-Rad development at Hercules and have been applied to adjacent properties. It should be emphasized that these are negotiated agreements for specific situations and not an administrative code.

Development Issues

An extensive amount of site characterization work has been undertaken for the Gelsar property, and a number of contaminated areas have been identified and cleaned up. Clean-up has been achieved on the Gelsar property with the result that some low levels of contaminants remain on site, in some cases covered by up to 20 feet of imported fill. Importation and grading of fill on other portions of the property will result in the safe burial of other low level contaminant hot spots, but will mean the Gelsar property will likely indefinitely have some land use (deed) restrictions imposed on it by the California Division of Health Services (CDHS). Under this clean-up level both industrial and commercial uses are permitted. Land use limits will be described and detailed in deed restrictions for the affected parcels.

The Hercules Properties, Inc. parcels are currently listed as a California and Federal Superfund Hazardous Waste Site, in large part because of incomplete information about the nature and extent of possible chemical contamination problems at the plant site. The first phase of an extensive hazardous waste investigation has been completed at the plant site and initial results showed the plant not to have widespread and serious problems. The second phase of the hazardous waste study is underway and also indicates that hazardous waste problems are minimal and localized. No explosive compounds have been found. Some small areas containing fuels and elevated metals levels have been identified which possibly indicate small scale site contamination.

As discussed earlier in the biological resources section there is the possibility that sediments in Refugio Creek and the tidal slough entering Refugio Creek from Pond C contain unacceptable levels of oil and grease, heavy metals, or explosive compounds. It is likely that the U. S. Army Corps of Engineers and the Regional Water Quality Control Board will require testing of the sediments in association with the Refugio Creek stream relocation program.

3.3.5 Cultural Resources

The SPA has been investigated by professional archaeologists in recent years in conjunction with the preparation of Environmental Impact Reports. No significant archaeological resources have been identified. However, the California Archaeological Inventory at Sonoma State University should be consulted during the preparation of future development plans for portions of the SPA.

The prior "company town" along Railroad Avenue currently has Historic Register status. The Historic District encompasses approximately 25 homes and cottages as well as the administration buildings for the former Hercules Powder Company. As a result of the 1983 Dynamite Redevelopment project, rehabilitation of several of these structures is now underway.

Development Issues

New development in this area should be required to meet specific design criteria so that the unique architectural and landscape character of this area is not changed.

3.3.6 Visual Resources

Higher elevations on the western portion of the SPA and Hercules Point offer expansive views of San Pablo Bay and Mount Tamalpais. The turnaround at the foot of Railroad Avenue also offers a unique vantage point. The architectural and landscape character of the historic "company town" is also a very attractive feature. These elements enhance the SPA's attractiveness for development.

The valley landform of the remainder of the SPA, however, restricts the views inward and outward. As a result, the deteriorating chemical plant, the railroad track and the sewage treatment plant become dominant visual features. These elements provide a negative image that is incompatible with the adjacent development and detrimental to the overall attractiveness for new development within the SPA.

San Pablo Avenue through the City of Hercules is designated as a scenic corridor of relatively high environmental value. The groves of mature eucalyptus trees along the westerly side of the avenue provide a parkway character and effectively screen from view the adjacent industrial properties. Other mature stands of trees block views into the site from adjacent residential areas.

Development Issues

Attractive features such as views and the Historic District should be protected and enhanced by future development within the SPA. Negative visual elements should be eliminated entirely or screened from most vantage points.

To the extent possible, plans for future development should include provisions for the preservation, enhancement or replacement of existing tree masses. The San Pablo scenic highway corridor should receive particular attention in this regard.

3.3.7 Air Quality

The climate in Hercules is typical of central coast areas subject to marine influence. Annual precipitation at the SPA is approximately 21 inches. The SPA is exposed to winds from the west and southwest off San Pablo Bay resulting in a low air pollution potential. Air quality is monitored by the Bay Area Air Quality Management District in Richmond and Vallejo. Data from the Richmond monitoring station were used because the station is closer to Hercules and because Hercules is downwind of it under prevailing winds. In 1986, the daily air quality standards were not exceeded at either location for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide or suspended particulates. Hercules Properties, Inc. has a package of current permits from the Bay Area Air Quality Management District to operate all of their existing facilities (Appendix D).

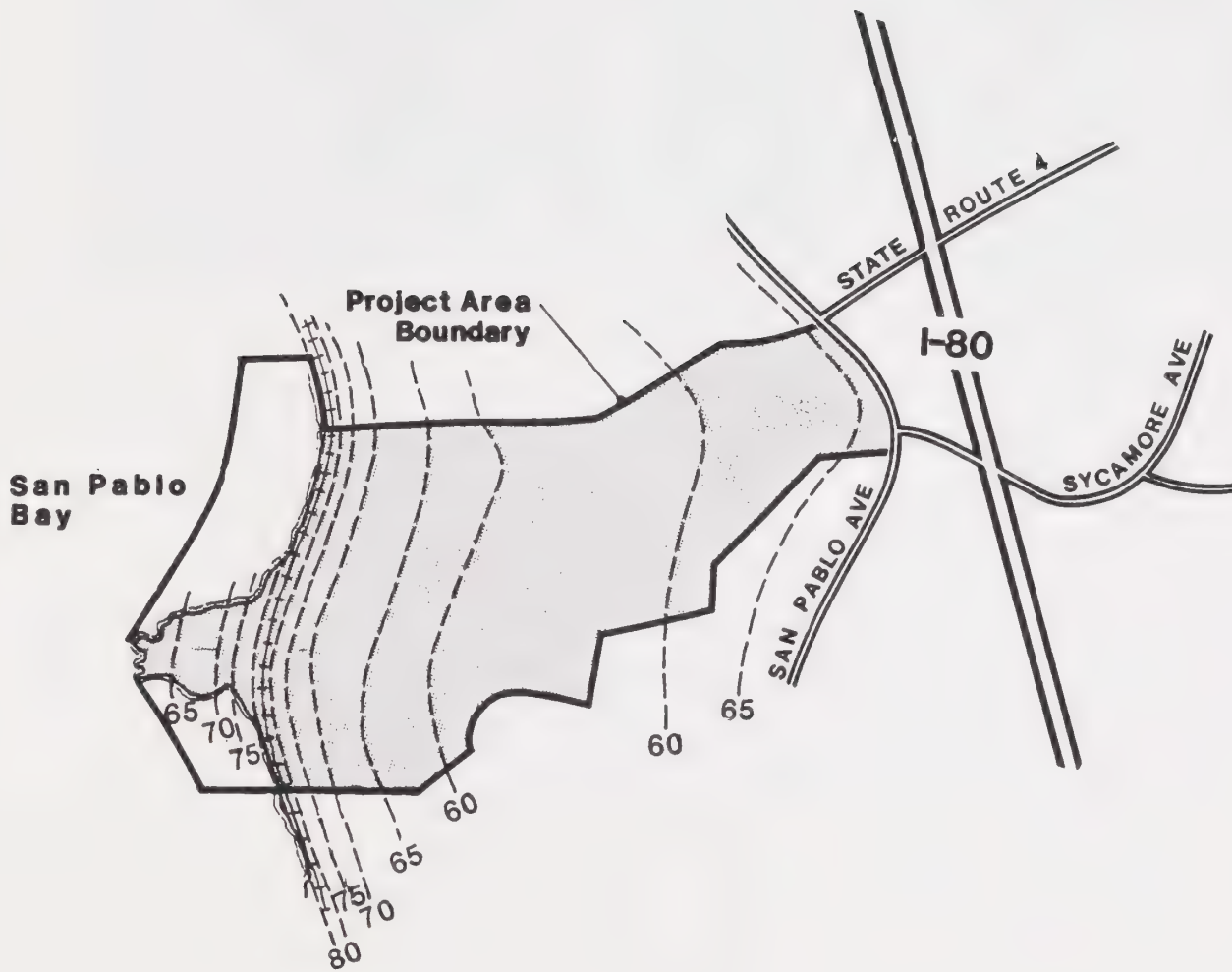
Development Issues

Several short term occurrences could affect air quality on the site. Dust generated during construction could cause the concentration of particulates to temporarily increase in the surrounding area. Traffic generated from proposed development in the SPA would incrementally increase air pollution in the region. Emissions from proposed industrial operations in the SPA could incrementally increase air pollution in the region. New plant uses could require new BAAQMD permits. And, depending on the direction of prevailing winds, noxious odors and sulfur dioxide from the nearby Pacific Refinery site and from the Hercules and Hercules-Pinole sewage treatment plants are likely to be noticeable several days per year.

3.3.8 Noise

The SPA is bordered on the northwest by the Southern Pacific Railroad, and on the southeast by the Atchison, Topeka and Santa Fe Railroad and San Pablo Avenue. Railroad traffic data were previously gathered by the Southern Pacific Transportation Company and the Atchison, Topeka and Santa Fe Railroad Company. Traffic noise data were collected by traffic consultants.

The greatest source of noise in the SPA is generated by intermittent railroad operations on both railroad lines. A second source of noise is traffic along San Pablo Avenue (Figure 3.9). Little objectionable noise is apparently generated at the largely non-functioning Hercules Properties, Inc. plant site. Portions of the SPA have existing noise levels that would be considered unacceptable to marginally tolerable to some types of land uses, such as residential uses or outdoor commercial activities (i.e., outdoor restaurants, open air shopping malls) according to the Hercules General Plan. What might be considered unacceptable noise levels residentially (greater than 60 dB) are largely centered along the railroad grade at the northern end of the property with noise originating from occasional train traffic. Unacceptable noise levels (75 dB and greater), as delineated in Table 15 in the Hercules General Plan are manifested for distances of up to 200 feet along the centerline of the northern railroad grade and at the ends of the southern railroad line, while conditionally acceptable levels (60-75 dB) occur up to 1,200 feet away in the north and 500 feet in the south. Existing noise levels which are considered to be conditionally acceptable (60-70 dB) also occur in the northwest portion of the property, as well as along San Pablo Avenue.



Existing Noise Level (Decibels)

Source: Hercules General Plan

Figure 3.9

Development Issues

There are two planning issues associated with noise in the SPA: (1) whether some types of land uses should be regulated or restricted because of impacts from existing noise levels, and (2) whether restrictions should be placed on certain types of industrial activities because of their potential for generating unacceptable noise levels and impacting neighboring land uses, particularly existing residential uses (Table 3.1). Generally, the areas most suited for industrial and commercial/industrial activities center along both railroad lines and San Pablo Avenue. These portions of the SPA have the highest noise levels which makes them unsuitable sites for sensitive receptors. The range of land uses within the SPA must be considered so that potential noise conflicts are minimized and the objectives of the Noise Element of the Hercules General Plan are met. If commercial/industrial development proceeds adjacent to existing or proposed sensitive receptors such as residential housing units, parks, schools, etc., then special attention must be given to noise attenuation. Currently, Hercules does not have an ordinance for specific noise level standards; however, it does require noise attenuation through building design or use of soundwalls.

Table 3.1
HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

Land Use Category	Community Noise Exposure Ldn or CDEL, dB					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes						
Residential - Multi Family						
Transient Lodging - Motels, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Business Commercial and Professional						
Industrial, Manufacturing Utilities, Agriculture						
Auditoriums Concert Halls						
Amphitheaters						

INTERPRETATION



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. Indoor and outdoor will be pleasant.



CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy, but tolerable.



NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.



CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be useable.

Source: Noise Element, Hercules
 General Plan (1985)

4. ECONOMICS

This section of the report summarizes the principal findings and conclusions of the economic analysis prepared as part of the Specific Plan. Essentially, the economic analysis reviews market conditions for several potential uses on the site, and recommends a mix of uses for the Plan Area based on market and financial feasibility.

4.1 RETAIL MARKET POTENTIAL

4.1.1 Definition of Primary and Secondary Trade Areas

For purposes of market analysis, retail market potential can be divided into two types of retail activity: regional potential and local potential.

Regional retail potential generally involves comparison goods. These are times for which shoppers look closely at quality, features and price. These goods which include major apparel items, furniture, automobiles, appliances, jewelry and similar purchases, will attract shoppers from relatively long distances. The items available at Hilltop Mall in Richmond are generally in the regional retail category.

Local retail potential primarily involves convenience goods. These are items such as food, drugs, housewares, hardware and similar goods which are generally purchased on a frequent basis near a shopper's home or work. The items available at the supermarkets, drug stores and convenience shops in Hercules are generally in the local retail category.

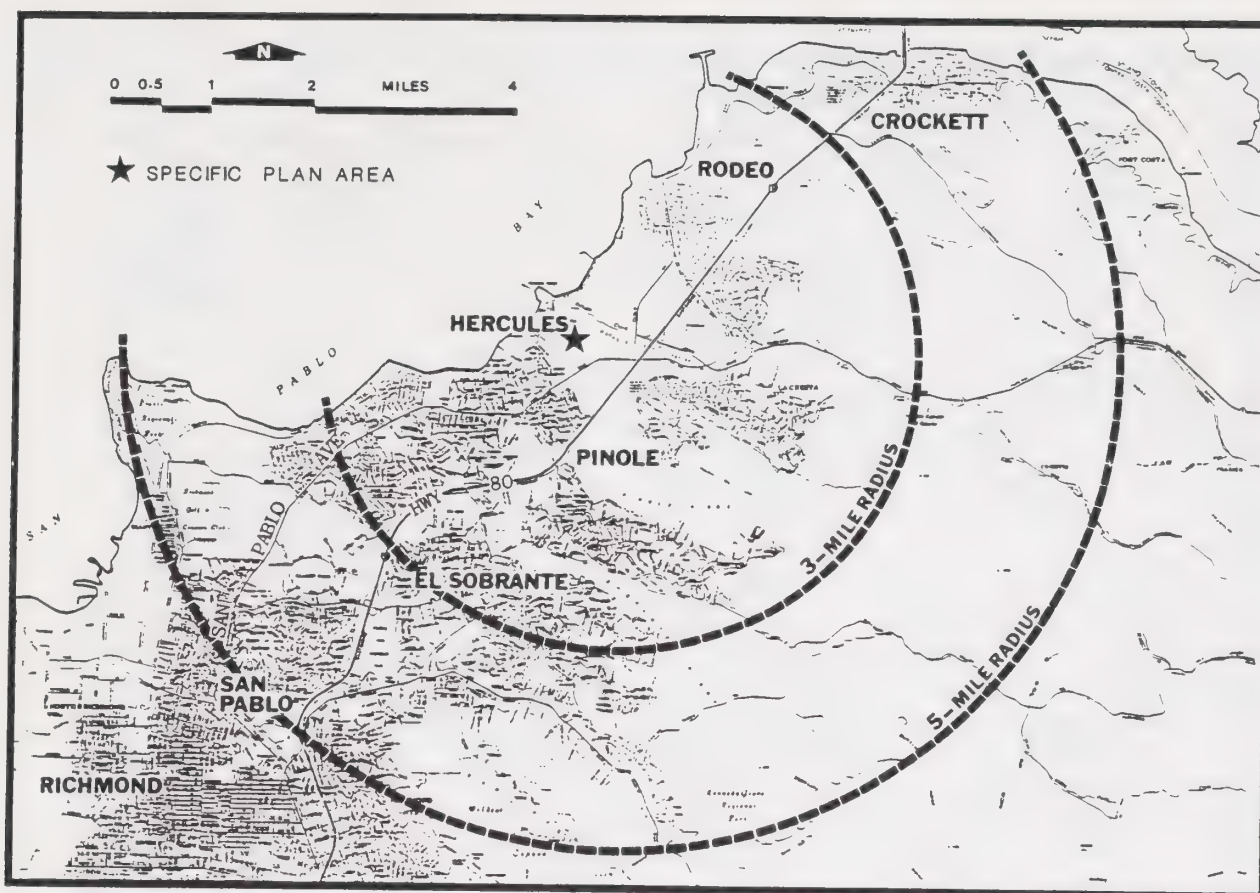
Figure 4.1 illustrates the projected retail trade areas for regional and local retail within the Plan Area. The three mile radius, which includes Hercules and adjacent portions of Rodeo and Pinole, is the local retail trade area of the Plan Area. The five mile radius, which extends from Crockett to Richmond, encompasses the regional retail trade area of the Plan Area. The regional retail trade area is the area from which shoppers will travel to the site to purchase regional items.

These trade areas were delineated based on an analysis of existing retail facilities in the area, a review of shopping patterns, a survey of shoppers at three major retail centers, and demographic patterns in the area. Both trade areas are primary trade areas, which are expected to provide 85 percent of total market support. Secondary trade areas are expected to include the balance of the north East Bay.

4.1.2 Demographic Analysis of Trade Areas

Both the regional and local trades areas have excellent demographics: household incomes are relatively high (with incomes in Hercules being higher than those of the trade areas), population growth is projected to continue to be rapid, home ownership rates are high, and other related factors are generally excellent.

It should be noted that the populations of the regional retail trade area (estimated at 100,200 in 1986) and the local retail trade area (estimated at 60,200 in 1986) are expected to increase substantially during the next several years (Table 4.3 indicates projected residential development in the area).



Source: Keyser Marston Associates, Inc.
September 1986

Figure 4.1: Retail Trade Areas

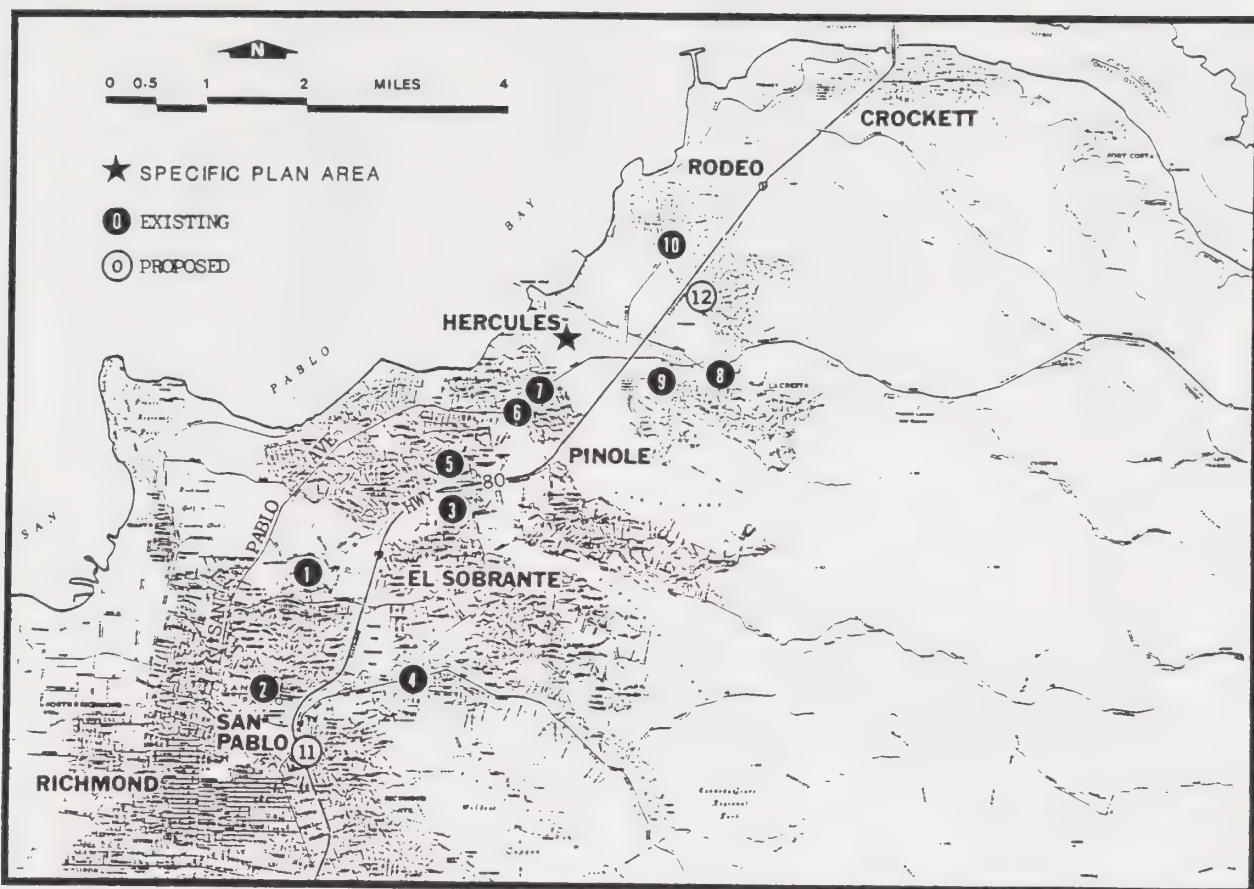
Because of the unique physical and architectural character of the Hercules historic town center and waterfront, Hercules has the market potential to serve as a regional focus for specialty office, retail and related commercial activities. The demographics of the regional trade area, with relatively high incomes and strong projected population growth, are expected to provide excellent market support to region-serving specialty commercial opportunities.

Employment levels in the retail trade areas are projected to increase rapidly during the next several years, with the continued development of office, R&D and industrial projects along the Interstate 80 corridor.

Competitive Framework

Table 4.1 and Figure 4.2 summarize the approximate 2.8 million square feet of existing and near term proposed retail space in the vicinity of the Plan Area.

Major regional retail facilities include Hilltop Mall, Pinole Vista, and El Portal, with a total of approximately 2.1 million square feet of retail space. These facilities are expected to expand gradually during the next few years. The area's demand for regional retail goods is expected to be satisfied by these facilities, and the proposed off price centers in the area, for the next several years.



Source: Keyser Marston Associates, Inc.
September 1986

Figure 4.2: Major Retail Competition

Approximately 700,000 square feet of the retail space in Table 4.1 is local-serving. This type of space is expected to expand as the area's population and employment base increase during the next several years.

Summary of Market Potentials

Development of regional retail space on the Plan Area is expected to be feasible in the early 1990's, when the area's employment levels and population, together with improved freeway access from Route 4, generate demand for an initial increment of space. The Plan Area is located in a strategic regional portion, and is expected to benefit from regional growth patterns by the early 1990's.

Local-serving retail space on the Plan Area, supported both by residents of the trade area and the local employment base, is projected to be feasible in the early 1990's as well. An initial increment of eating and drinking space, together with service retail functions and related local-serving retail, could be developed in the early 1990's.

Table 4.1

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
MAJOR RETAIL COMPETITION**

<u>Map Key</u>	<u>PROJECT</u>	<u>LOCATION</u>	<u>SIZE (GLA)⁽¹⁾</u>	<u>MAJOR TENANTS</u>	<u>COMMENTS</u>
<u>EXISTING</u>					
1	Hilltop Mall, Richmond	Hilltop Drive/ I-80	1,500,000 SF	<ul style="list-style-type: none"> • Emporium Capwell (200,000 SF) • J.C. Penney (208,000 SF) • Macy's (202,000 SF) • Lucky's • Art Mart • Aaron Bros. Limited, The 	Super regional center draws from North Contra Costa County. Extremely strong, continual expansion planned. Major research/office park and residential development nearby.
2	El Portal, Richmond	El Portal Drive/ Road 20	295,000 SF	<ul style="list-style-type: none"> • Home Club (110,140 SF) • Mervyn's • Long's Drugs • Safeway • J.J. Newberry • Radio Shack 	Home Club, new discount tenant may improve existing center by providing regional draw. Existing center suffers from poor layout and lack of visibility. Continual expansion planned.
3	El Sobrante Center El Sobrante	San Pablo Dam/ Appian Way	80,000 SF	<ul style="list-style-type: none"> • Fry's Supermarket • Grand Auto 	Strip commercial center. Older, auto-oriented. Fast food. 5,000 SF new retail being constructed.
4	Pinole Vista, Pinole	Appian Way/ I-80	350,000 SF	<ul style="list-style-type: none"> • Alpha Beta Store (58,000 SF) • Best Products (67,000 SF) • Big 5 Sporting Goods (10,000 SF) • Federated Group (30,000 SF) • Home Depot (81,000 SF) • K-Mart (73,000 SF) 	Strong regional center with high visibility and accessibility. Also draws from North Contra Costa County. Soon to come: Levitz and Orchard Supply. Pads scattered; some majors not very visible. Poor signage.
5	Appian 80, Pinole	I-80/ Appian Way	110,000 SF	<ul style="list-style-type: none"> • Grand Auto • Long's Drugs • Safeway 	Serves immediate and regional area due to its proximity to Pinole Vista Center across I-80.
6	Parkview Plaza, Pinole	Tenant Ave/San Pablo	30,000 SF	<ul style="list-style-type: none"> • Liquor Store 	Small convenience stores. Serves immediate area.

Table 4.1 (continued)

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
MAJOR RETAIL COMPETITION**

<u>Map Key</u>	<u>PROJECT</u>	<u>LOCATION</u>	<u>SIZE (GLA)</u>	<u>MAJOR TENANTS</u>	<u>COMMENTS</u>
7	Pinole Valley, Pinole	Pinole Valley Road/ Highway 4	53,000 SF	<ul style="list-style-type: none">• Supermarket• Bank	Small neighborhood - serving center.
8	Creekside Center, Hercules	Sycamore/ Highway 4	195,000 SF (when completed)	<ul style="list-style-type: none">• Lucky Food• Thrifty's	New center, next to City Center.
9	Sycamore Plaza, Hercules	Sycamore	13,000 SF	<ul style="list-style-type: none">• Deli• Pacific Bell	Small, mixed office/retail/restaurant center.
10	Rodeo Safeway, Rodeo	Parker/ Willow Ave	50,000 SF ⁽²⁾	<ul style="list-style-type: none">• Safeway• Pizza	New Safeway. Neighborhood center within a few miles from Hercules site.
TOTAL EXISTING			<hr/>		
			2,676,000 SF		
<u>PROPOSED</u>					
11	Off-Price Center San Pablo	San Pablo Dam/ I-80	110,000 SF (Proposed)	<ul style="list-style-type: none">• Gemco• Marshall's• Cost Plus	Still in negotiation with Redevelopment Agency. May not go forward.
12	Commercial Development, Hercules	I-80 Willow Avenue	30,000 SF (estimated)	<ul style="list-style-type: none">• To be determined	Under consideration in General Plan. Highway Commercial. Uncertain size.
TOTAL PROPOSED			<hr/>		
			140,000 SF		
GRAND TOTAL			<hr/>		
			2,816,000 SF		

(1) GLA is defined as Gross Leasable Area.

(2) Estimated size, based on field survey.

Source: 1986 Shopping Center Directory, National Research Bureau, Inc.
Keyser Marston Associates, Inc.
September, 1986

4.2 OFFICE, LIGHT INDUSTRIAL, AND R&D MARKET POTENTIAL

4.2.1 East Bay Market Trends

The current East Bay markets for general purpose office and light industrial space are very active, with record absorption in the past few years, and decreasing vacancy rates in spite of record construction activity.

The current inventory of approximately 16 million square feet of office space in the East Bay from Crockett to Hayward is dominated by downtown Oakland, with over 50 percent of the inventory. Rapid growth of office space in other areas of the East Bay has occurred in recent years.

The major office projects proposed in the East Bay during 1987 contain approximately 600,000 square feet of space. As a result, the current vacancy rate of just over 20 percent is projected to decrease by 1988.

The current inventory of approximately 120 million square feet of industrial space in the East Bay has a current vacancy rate of approximately 15 percent, concentrated primarily in R&D space, warehousing, and older large scale industrial facilities.

Demand for general purpose light industrial space is projected to continue to be strong, with very little light industrial space available in the East Bay and vacancy rates below 5 percent.

Demand for research and development (R&D) space is expected to continue to be relatively weak, due to high tech industry trends and the inventory of vacant space available.

Lack of light industrial/R&D sites in Oakland, Emeryville, Berkeley and San Leandro has resulted in extensive rehabilitation or reuse of older industrial facilities and sites in these cities, together with increased activity in Richmond. Vacancy rates are expected to remain high in Hayward, where vacant inventory currently includes approximately 6.5 million square feet of predominantly high cube warehouse/distribution space and flex/R&D space.

Most high industrial/R&D projects proposed in the East Bay during 1987 are expected to be either incubator space or general purpose light industrial space. Lack of sites is expected to keep vacancy rates low during the next few years.

4.2.2 Hercules Office, Light Industrial, R&D Potential

Table 4.2 and Figure 4.3 summarize major office, light industrial and R&D development projects in the Hercules area. As Table 4.2 indicates, there are approximately 655,000 square feet of existing office, light industrial and R&D space, and approximately 1.7 million square feet of proposed office, light industrial and R&D in the Hercules area. Competition in the area is expected to remain strong during the next few years.

Recent absorption trends in the area indicate increasing market acceptance of light industrial and flex space. It is projected that absorption rates of office and R&D space will increase significantly in the next few years as other competitive areas are built out, and as increased population and traffic in the Hercules area delineates a separate labor market for the site.

Table 4.2

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
MAJOR OFFICE/R&D/INDUSTRIAL DEVELOPMENT EXISTING, UNDER CONSTRUCTION, PROPOSED**

<u>Map Key</u>	<u>PROJECT</u>	<u>LOCATION</u>	<u>SIZE (GBA)</u>	<u>COMMENTS</u>
<u>Existing/Under Construction</u>				
1	Hilltop East, Richmond	San Pablo/Hilltop	40 + Acres (300,000 SF)	Mostly Chevron property. Office park/industrial/R&D. Tenants include medical, research, banking facilities. Still expanding.
2	Pinole Medical Office Buildings, Pinole	Appian Way I-80	Not Known	Existing cluster of 5-6 major office buildings & support services.
3	Magganas Development, Pinole	Appian Way (East of I-80)	(35,000 SF)	Small office under construction adjacent to Pinole Vista Center.
4	North Shore Business Park, Hercules	SW Corner of I-80/ Route 4	12 + Acres ⁽¹⁾ (200,000 SF)	50,000 SF completed. Additional pads under construction, with target of 200,000 SF total in first phase.
5	Bio-Rad Lab., Hercules	NW Corner of I-80/ Route 4	10 Acres ⁽¹⁾ (120,000 SF)	Consists of 90,000 SF R&D facility plus 30,000 SF corporate office building. Owner occupied.
TOTAL EXISTING/ UNDER CONSTRUCTION			655,000+ SF	

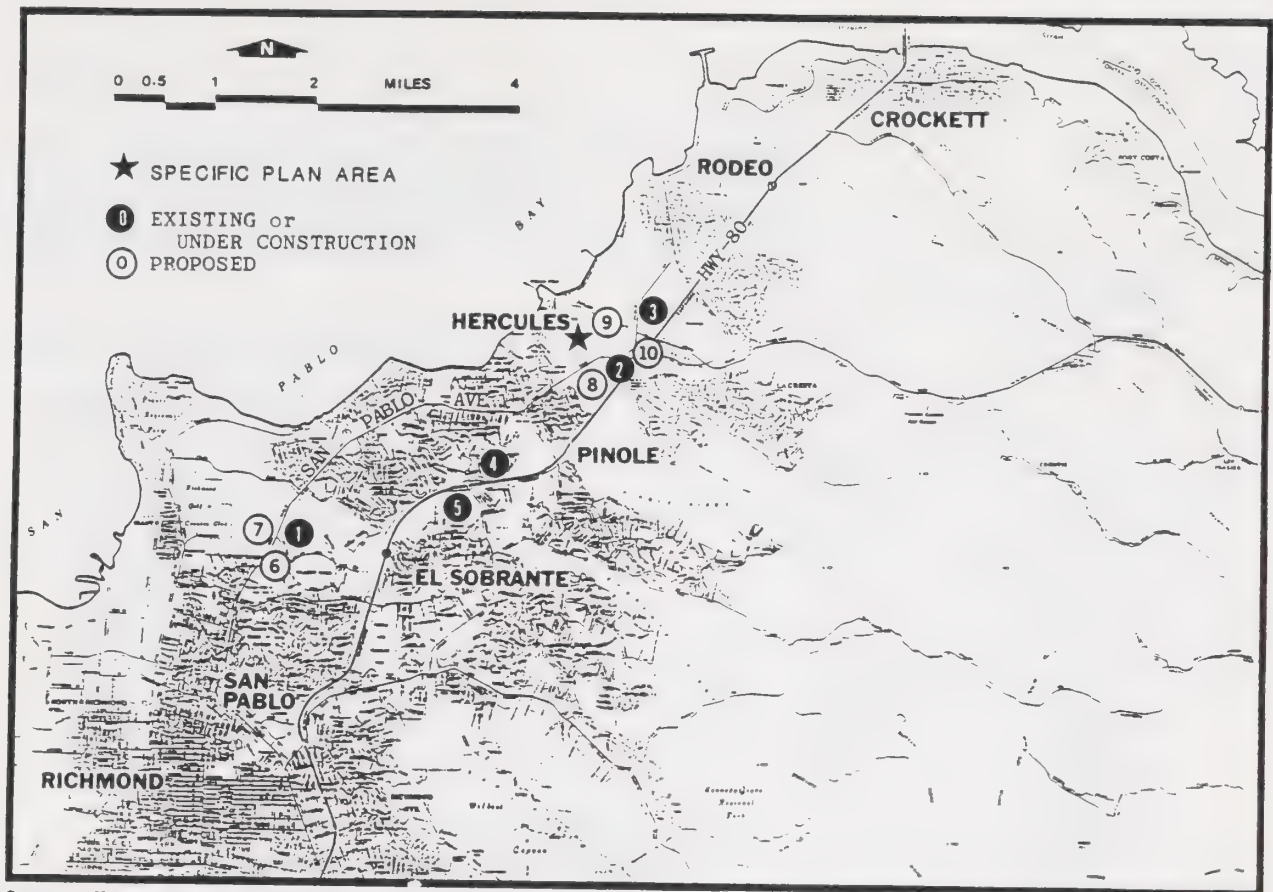
TABLE 4.2 (Continued)

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
MAJOR OFFICE/R&D/INDUSTRIAL DEVELOPMENT EXISTING, UNDER CONSTRUCTION, PROPOSED**

<u>Map Key</u>	<u>PROJECT</u>	<u>LOCATION</u>	<u>SIZE (GBA)</u>	<u>COMMENTS</u>
<u>Planned/Proposed</u>				
6	Hilltop East, Richmond	San Pablo/Hilltop	30 + Acres (200,000 SF)	Expect completion within next 2-5 years.
7	Hilltop West, Richmond	San Pablo/Hilltop	100 + Acres (700,000 SF)(1)	Proposed in Master Plan, to be built within next 5 + years.
8	Klobas Building, Pinole	I-80/San Pablo	(11,000 SF)	Awaiting Council review of rezoning.
9	North Shore Business Park, Hercules	SW Corner of I-80/Route 4	65 + Acres (800,000 SF)	Total built out is 1M SF + 800,000 SF to be built in subsequent phases.
10	Bio-Rad. Lab., Hercules	NW Corner of I-80/ Route 4	63 + Acres (780,000 SF)	Total built out is 900,000 SF life science complex. Owner occupied.
TOTAL PROPOSED			2,491,000 + SF	
GRAND TOTAL			3,146,000 + SF	

- (1) Portions recently completed/under construction only. Additional space proposed/planned.
(2) Estimated size.

Source: Western Real Estate News
Chevron Land Development
Pinole Planning Department
Keyser Marston Associates, Inc., September, 1986



Source: Keyser Marston Associates, Inc.
September 1986

**Figure 4.3: Major Office/R&D/
Industrial Development**

4.3 RESIDENTIAL POTENTIAL

Demand for residential uses is based primarily on increased population (or household formations). As is indicated above, the population of the Hercules area is expected to continue to increase rapidly for the next several years, until the area's residential land inventory has been completely developed.

As Table 4.3 indicates, there are several major residential projects proposed in Hercules and its sphere of influence, and several other large residential projects in various stages of construction. Based on expected population increases and the development outlined in Table 4.3, it is projected that there will be continued strong residential demand in the Hercules area for the next several years.

4.4 SUMMARY

The optimum mix of uses for the Specific Plan Area, based on market and financial feasibility, will include light industrial space, mixed R&D and office uses, regional commercial use, residential use and local retail/commercial/office use in the Historic Town Center and Waterfront. These uses and their proposed locations within the SPA are discussed in Chapter 5.

Table 4.3

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
MAJOR RESIDENTIAL PROJECTS (1)
EXISTING, UNDER CONSTRUCTION OR PROPOSED**

	<u>Number of Units</u>
EXISTING 1985 (San Pablo, Richmond and Pinole)	29,767
UNDER CONSTRUCTION	
• Bayside Village, Hercules	118
• Olympian Hills, Hercules	95
• Hanna Ranch, Hercules	1,100
• Tiffany Ridge, Hercules	393
• Neighborhood 5, Hercules	1,160
• Willow Glen Apartments, Hercules	84
• San Pablo/Church Lane, San Pablo	117
• San Pablo/Church Lane (Sr. Hsg), San Pablo	114
• Hilltop North, Richmond	1,000
• Hilltop Grove, Richmond	585
• Valley Park, Richmond	100
• Castro Ranch/Alhambra Valley, Richmond	400
TOTAL UNDER CONSTRUCTION	5,266
PROPOSED	
• Franklin Canyon, Hercules	1,156
• Refugio Valley/Falcon Way, Hercules	200
• Castro Ranch Road/Alhambra Valley, Richmond	310
• Park Glen Estates, Richmond (2)	983
• Marston Ranch, Pinole	124
• Oak Ridge Road, Pinole	96
• Henny/Oak Ridge, Pinole	147
• Pinole Shores, Pinole	377
• Elderly Congregate Housing, Pinole	133
• Sunny View, Pinole	60
TOTAL PROPOSED	3,586
GRAND TOTAL (3)	<u>37,959 Units</u>

- (1) Includes residential projects in Hercules, San Pablo, North Richmond and Pinole.
 (2) On hold at time of survey.
 (3) Assume all projects are built.

Source: Urban Decision Systems
 Pinole, Hercules, Richmond Planning Department
 Contra Costa Planning Department
 Keyser Marston Associates, Inc., September, 1986

5. PROPOSED DEVELOPMENT PLAN

This section describes the planning concepts of the Specific Plan Area (SPA) and presents the development plan. These concepts are intended to clarify the goals and objectives of proposed development and to provide a clear and consistent foundation for implementation of the Hercules Properties, Inc./Gelsar Specific Plan. The plan strives to achieve the stated goals and objectives by managing development and use of the land within the SPA.

The concept for the future use of the Specific Plan Area was developed from (1) a synthesis of the **market potentials** for a more diverse land use mix presented in Chapter 4 with (2) the **environmental opportunities and constraints** of the SPA presented in Chapter 3. The types of land uses which were determined to be economically feasible on the site have specific locational criteria. The areas which are most attractive for development are the Bay side of the site, with its views and the unique destination potential of the historic "company town," and the San Pablo frontage, because of its high visibility and easy access. The overriding land use concept, then, is to maximize the use of the most attractive portions of the SPA to meet the development goals stated in Chapter 2.

The land use concept for the Specific Plan Area provides a framework for land development which coordinates public improvements and allows flexibility in land use choices to respond to future market conditions over the next 10 to 15 years. The most appropriate type of use should be based on current market demands at the time of development (Chapter 8, Phasing).

5.1 RECOMMENDED MIX OF USES

Based on market and financial feasibility, the optimum mix of uses of the SPA includes light industrial space, mixed R&D and office uses, regional commercial uses (such as office, retail and hotel), condominium or townhouse residential development, as well as a mix of retail and other related commercial space in the Historic Hercules and Waterfront subareas. Each of these uses are discussed below; Table 5.1 and Figure 5.1 present a summary of the uses and their proposed locations.

Light industrial uses are feasible on the site in the current market, and are expected to remain feasible for the foreseeable future. As Table 5.1 indicates, 54.6 acres have been designated for light industrial uses, with 639,502 square feet of space projected. The types of activities projected in this space would include light assembly, industrial service functions, distribution centers, and similar uses. Based on recent and projected market trends, it is anticipated that this amount of light industrial space on the site could be absorbed beginning immediately, and could be entirely absorbed within the next 10 years.

Mixed R&D and office uses are feasible on the site in the current market, and are expected to become increasingly feasible for the foreseeable future. As Table 5.1 indicates, 35.6 acres have been designated for mixed R&D and office space, with 728,264 square feet of total space projected. The types of activities projected in this space would include back office/processing centers, computer center, prototype design and development, software design, and similar functions. Based on recent and projected market trends, it is anticipated that absorption of this amount of mixed R&D and office space could begin relatively slowly in the current market, and be completed within the next 15 years.

Table 5.1

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
DEVELOPMENT PLAN SUMMARY**

<u>Subarea</u>	<u>Name</u>	<u>Acres</u>	<u>FAR</u> ⁽¹⁾	<u>SF of GBA</u> ⁽²⁾	<u>Mix of Uses</u>
1	Historic Hercules	20.7	.10	90,000	Office/retail/eating & drinking
2	Waterfront Park Add'n	11.6	NA ⁽³⁾	NA	NA
3	Waterfront Commercial	13.4	.10	58,000	Limited retail/eating & drinking
4	Special Study Area	39.0	NA	NA	NA
5	R&D/Office	13.9	.50	303,000	R&D/office
6	Residential	11.9	6-10 DU/AC	106,000	Residential (88 DU @ 1,200 SF = 106,000 SF)
7	Light Industrial	10.1	.35	154,000	Light industrial
8	Relocated Plant Area	18.0	NA	297,000 ⁽⁴⁾	Process Development/R&D
9	R&D/Office	12.1	.45	237,000	R&D/Office
10	Light Industrial	33.5	.35	511,000	Light industrial
11	Light Industrial	11.0	.35	168,000	Light industrial
12	Commercial	20.3	.50	442,000	Retail/office/eating & drinking/hotel (300 rooms @ 700 SF = 210,000 SF)
13	Creek/Open Space Corr.	31.9	NA	NA	NA
14	R&D/Office	9.7	.45	190,000	R&D/Office
--	Major Roads	14.3	NA	NA	NA
TOTALS		271.4	.30 (on 174.5 net acres)	2,556,000	

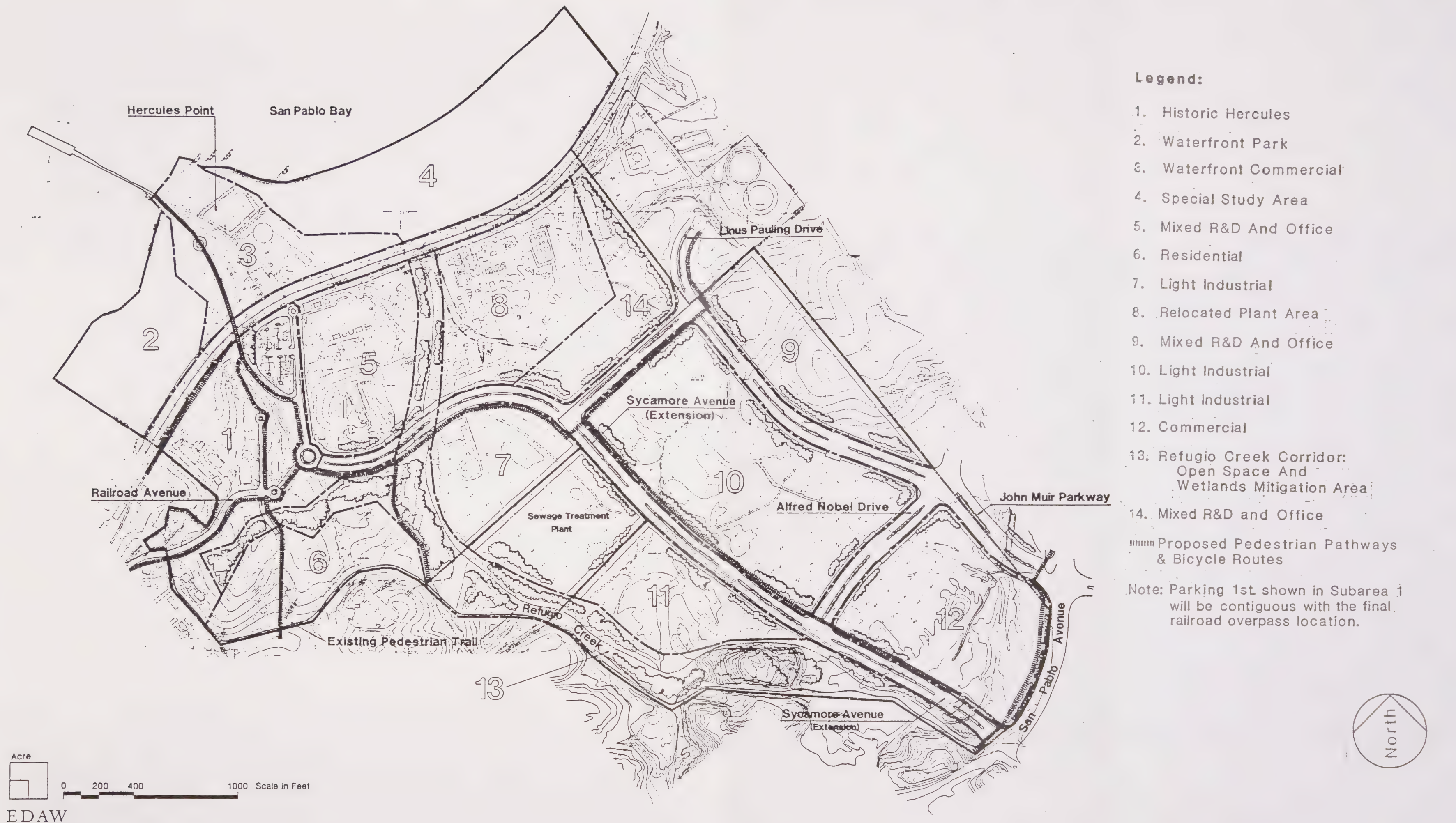
(1) Floor to area ratio, based on gross floor area.

(2) GBA is defined as gross building area.

(3) Not Applicable.

(4) Based on full enclosure; presence of non-enclosed equipment would displace some GBA.

Source: EDAW, Inc. and Keyser Marston Associates, Inc., September, 1987.



Hercules Properties Inc/Gelsar

Specific Plan

Proposed SPA Development Plan

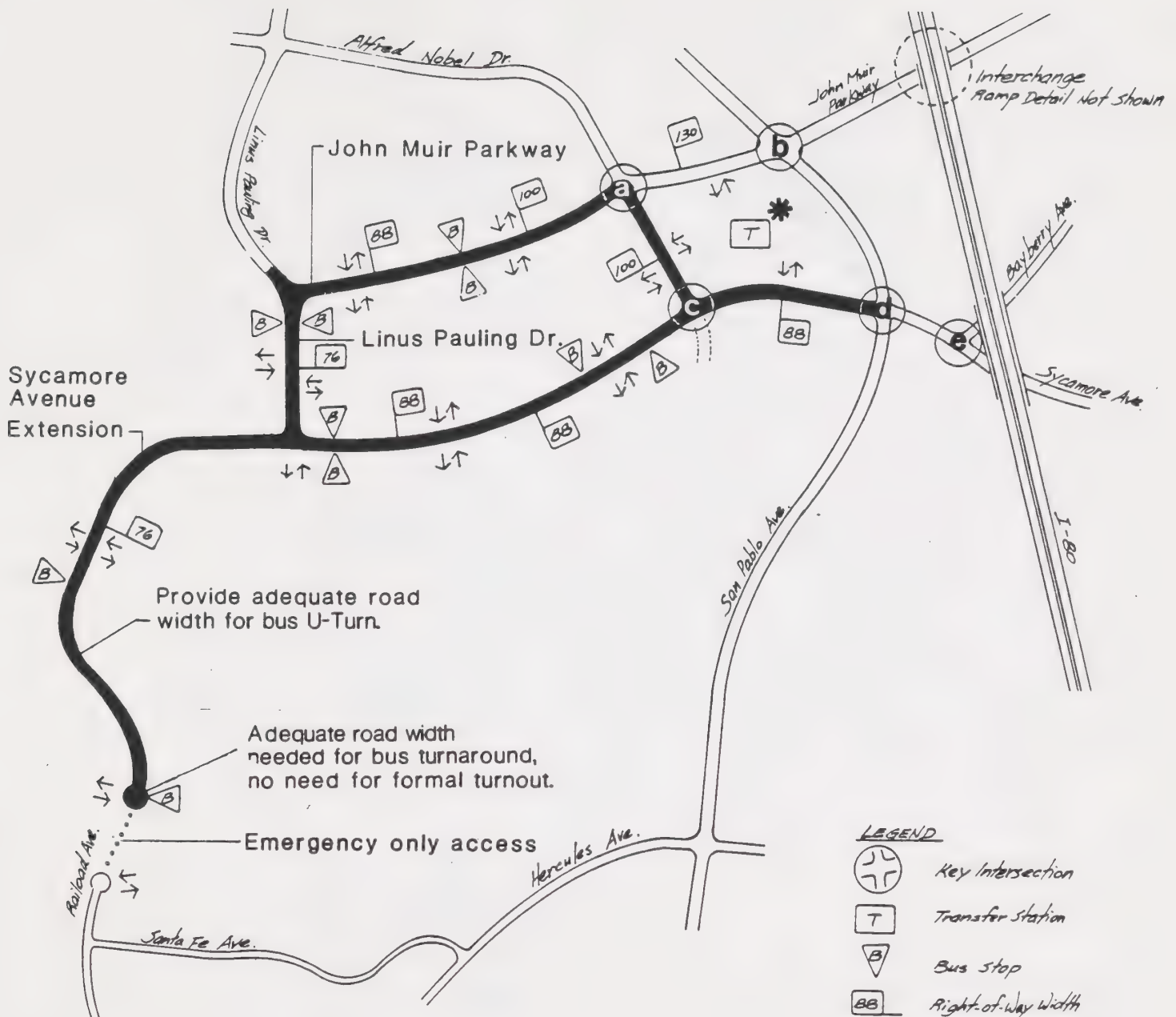
Figure 5.1

1. The recommended improvements are designed to provide a “D” or better peak hour level of service at all key intersections.
2. Recommended lane configurations at key intersections are shown in Figure 5.3. Grade separation and provision of direct ramps connecting to southbound Interstate 80 will be required at the intersection of San Pablo/John Muir. A design concept is illustrated in Figure 5.4.
3. It is assumed that a new Highway 4 interchange will be constructed at Willow Avenue, and Sycamore Avenue will be re-aligned to connect to Willow Avenue at the new interchange. While this interchange is beyond the immediate vicinity of the Specific Plan Area, it is an integral part of the SPA improvement plan and crucial to moving the traffic from full build-out of the City. Otherwise, traffic demand on San Pablo and Sycamore would be significantly increased and some of the developments in the City would need to be curtailed. One possible scenario involves substituting 440,000 square feet of commercial/industrial developments east of Interstate 80 (outside the Specific Plan Area) with a 250-unit residential development. However, this scenario also requires further widening of the Bayberry approach to Sycamore to provide for three right-turn lanes and two left-turn lanes. The exact interchange configuration and the Sycamore alignment are considered outside the scope of the Specific Plan. It is recognized that placing a new interchange at this location may encounter resistance from Caltrans due to their general policy of maintaining a one-mile spacing between interchanges. However, the analysis in the city-wide traffic study has indicated that the interchange can be designed to meet the intent of the policy, that is, to provide adequate weaving capacity between the two interchanges.
4. The following intersections should be signalized:
 - San Pablo Avenue/John Muir Parkway
 - Bayberry Avenue/Sycamore Avenue
 - Alfred Nobel Drive/John Muir Parkway
 - Alfred Nobel Drive (extension)/Sycamore Avenue (extension)

As a minimum, the intersection signals at Bayberry/Sycamore and San Pablo/Sycamore shall be coordinated. This is necessary due to the close spacing of the two intersections.

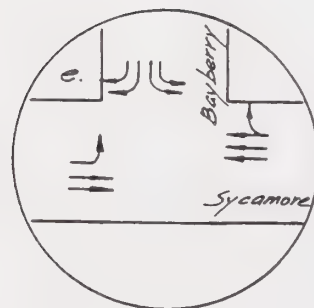
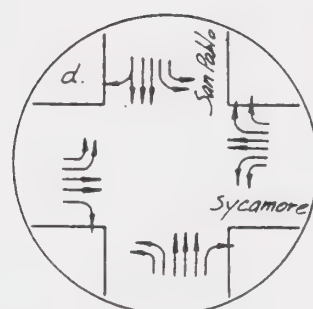
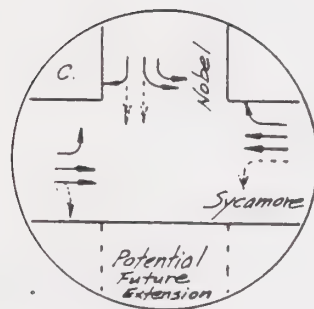
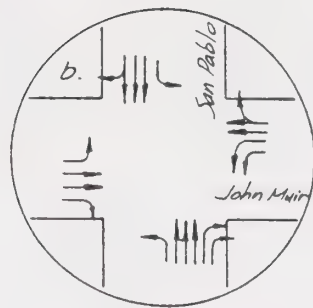
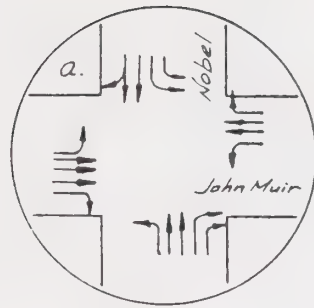
Under the “build-out” scenario, other intersections in the City may also require signalization. However, only the intersections listed above are considered within the influence of the Specific Plan.

5. The alignments of John Muir Parkway, Sycamore Avenue, Alfred Nobel Drive, and Linus Pauling Drive within the Specific Plan Area could be modified slightly to suit specific development plans or to accommodate utilities and/or relocation of Refugio Creek. The proposed alignment of Linus Pauling Drive through the SPA to its intersection with Sycamore is intended to also function as a transition between two different land use subareas.



* If transfer station is not developed in first 5 years of project, additional turn-outs shall be provided on Sycamore and John Muir near San Pablo; exact location of transfer station will be determined when property develops.

Circulation Plan

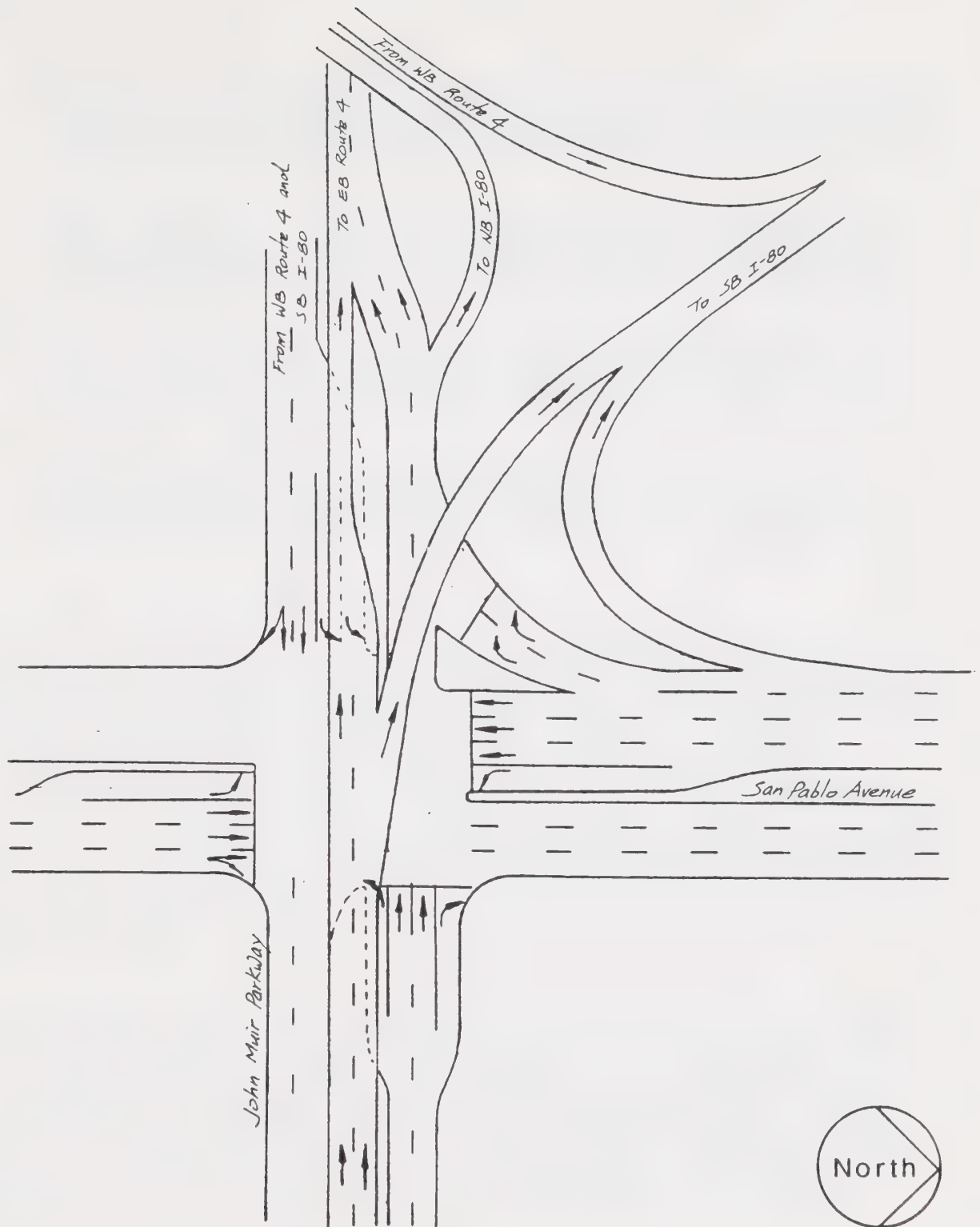


Note: Also see Figure 4.5 for
Grade Separation Concept

Recommended Lane Configuration at Key Intersections

Source: JHK Associates

Figure 5.3



Grade Separation Concept at the San Pablo/John Muir Intersection

Source: JHK Associates

Figure 5.4

6. The right-of-way widths indicated in the plan shall be deemed the minimum required between intersections. Additional right-of-way may be required at intersections and at entrances to developments and major parking facilities. Typical roadway cross-sections are illustrated in Figure 5.5.
7. Right-of-way should be preserved for potential future extension of Alfred Nobel Drive southerly from the intersection with Sycamore Avenue through to San Pablo Avenue. This will require an easement through the dedicated Open Space/Creek Corridor Subarea.
8. Vehicular access to Historic Hercules area shall be provided through the site via Sycamore Extension, but only in the public parking area. Railroad Avenue and Sycamore Extension will not be connected; however, there shall be an emergency vehicle access connecting the two roads.
9. Vehicular access to the Waterfront Commercial Area shall be limited to service and emergency vehicles. The trestle and roadway widths will be reconstructed to accommodate these vehicles accordingly. Parking for the developments in this area shall be provided east of the railroad tracks.

5.3.2 Pedestrian Circulation and Open Space

The diverse mix of proposed land uses, the proximity of several residential areas and the number of employees proposed for the SPA demand the development of a network of pedestrian ways that are integrated with the existing local and regional trail system. The Refugio Creek open space corridor will form the site's southern boundary and extend it to the commercial transit/transfer area and San Pablo Avenue. A portion of the open space corridor will also extend into Historic Hercules and the Waterfront Park Area beyond. It would, therefore, be feasible to walk from Historic Hercules or the Residential Subarea to the San Pablo Commercial area crossing only one major street (Sycamore Avenue). Sidewalks and pedestrian crossings will, of course, be provided along all major roadways within the SPA development with connections into the North Shore Business Park, where appropriate. Figure 5.1 illustrates the proposed pedestrian pathway system; design guidelines for pedestrian ways can be found in Chapter 7.

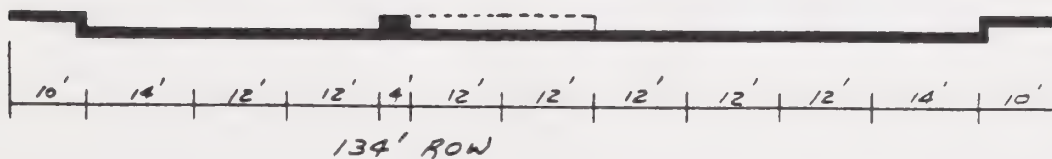
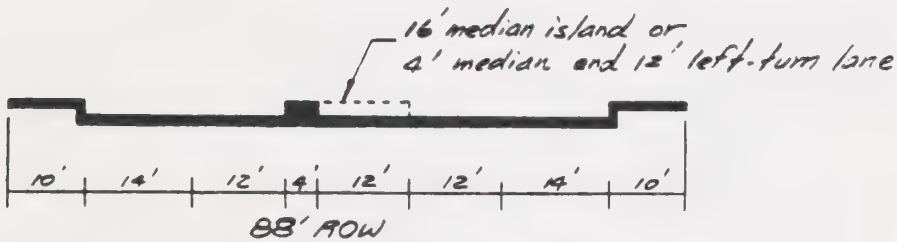
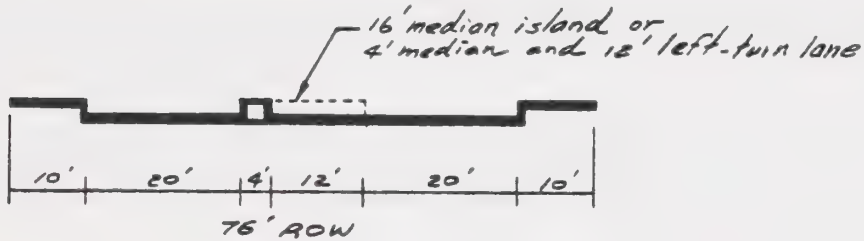
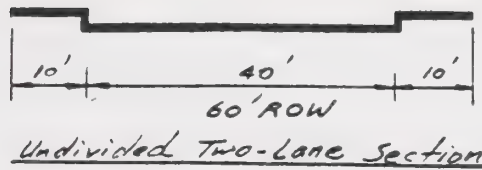
5.4 INFRASTRUCTURE AND PUBLIC SERVICES

Proposed land uses for the SPA could generate as much as 2.5 million gallons of sewage per day. This is approximately a 250 percent increase over the amount of sewage generated by existing land uses. Capacity purchased by landowners in 1983 was estimated at 500 gallons per acre for the Hercules Properties, Inc. parcels and at 1200 gallons per acre for the Gelsar parcels. The potential requirements for the proposed SPA land use plan is 3000 gallons per acre, depending upon the number of water intensive uses which are actually developed. This potential treatment capacity level will require both the expansion of the Hercules Sewage Treatment Plan and an in-depth study of the Rodeo pump plant and outfall to determine the extent of necessary improvements.

The collection of solid waste from the SPA will continue to be provided by the Richmond Sanitary Service. As specific development plans are phased into the SPA, estimates of the amount of solid waste potentially generated should be provided to the Service for its long range

Notes:

- (1) Provision for bicycle paths within the traveled way or back of curb may require increasing the street dimensions shown.
- (2) Where streets are not divided, the cross-section dimensions below will hold except for the island dimension



Typical Cross-Sections

planning purposes (Chapter 3). In addition, all development plans should have a truck access review by the Service to assure that height, width and bin location restrictions are accounted for at project level site design.

The Rodeo Hercules Fire Protection District will require increased fire flow (hydrants) within the SPA, as well as fire protection systems in all buildings. Specific development plans will be reviewed to insure that emergency vehicle access roadway widths and turning radii are adequate. Developer fees will be necessary if any land use requires special fire fighting equipment. A new fire station will be built at Refugio Valley Road and Falcon Drive to replace the temporary fire station next to the Civic Center; this will not greatly impact the response time to the SPA.

Police protection will be provided for the SPA by the City's Department of Public Safety. The department's staffing plan will be updated as development in the SPA is phased. The Police Station is located at the new Civic Center on Sycamore Avenue.

Water service to the site will be provided by the East Bay Municipal Utility District. Some properties within the SPA will require pipeline extensions before development. The site is also served by Pacific Gas and Electric for gas and electric service; and Pacific Bell for telephone service.

6. REGULATORY FRAMEWORK

6.1 OVERVIEW

As indicated in Chapter 3, the Specific Plan Area exists within a dynamic and complex framework of local, state and federal regulations. In response to the rapid local growth, the City has undertaken an update of its General and Neighborhood Plans as they effect future employment areas of the City. This effort is intended to provide the level of specificity needed to better guide future land use. The Hercules Properties, Inc./Gelsar Specific Plan is a key component of that effort and, when approved, will be adopted as an amendment to the General Plan. Another component has been the review, under separate contract, of the City's industrial zoning ordinance by Henn, Etzei and Mellon. That study, which is in progress, has been of value in the development of an implementation process for future land use regulation within the SPA, where changes in zoning designations will be necessary.

6.2 ENVIRONMENTAL REVIEW

Planning for the SPA is also subject to the authority of the California Environmental Quality Act. A multi-level environmental review process has been established for the development of the SPA, in an effort to focus on the environmental issues which are relevant to the level of approval being considered. The Hercules Properties, Inc./Gelsar Specific Plan will be, upon approval, an amendment to the Hercules General Plan. An initial review to assess impacts at the General Plan level will, therefore, be followed by a series of separate and more detailed environmental assessments when more specific development plans are proposed.

The Initial Study incorporated in this document represents the first level in the review process. There are potential environmental impacts which can be understood and addressed at this time; other impacts either cannot now be anticipated or will require information that was not available during the current planning effort to be fully understood. As the Initial Study (Appendix E) indicates, impacts which can be foreseen at this time can be fully mitigated either by existing adopted City ordinances or by the policy recommendations set forth in this Specific Plan. Mitigation measures recommended in this document are integral to the plan. Applications for specific development entitlements will be subject to further environmental review and could require further mitigation.

6.3 COMPLIANCE WITH THE HERCULES GENERAL PLAN

Compliance with the local General Plan is a requirement of all specific plans. The sections below describe how the Hercules Properties, Inc./Gelsar Specific Plan will relate to Hercules' current General Plan.

6.3.1 Land Use Element

As stated in the amended General Plan of 1985, the goals of the City require the functional and compatible arrangement of land uses in a pattern that is coordinated with other systems--traffic, open space/recreation and utilities. Further, the General Plan envisions the establishment of an economic base that is capable of supporting community services in the future. The Specific Plan has incorporated these goals in its final recommendations. It provides a viable development concept that will minimize conflicts between land use types, that will provide a desirable life style for residents and visitors, and that will maintain and enhance the natural character of the study area.

6.3.2 Circulation Element

The General Plan Circulation Element identifies the need to construct a new Highway 4 interchange at Willow Avenue as well as several arterial and local collector road segments within the Specific Plan area. The recommended Circulation Plan, shown in Figure 5.2 and described in Section 5.3, conforms fully to the corresponding General Plan provisions. The provision of bus bays and transit transfer facilities in the Specific Plan is also in compliance with the stated policies and intent of the General Plan.

6.3.3 Housing Element

Unit densities and requirements for open space and parking for the medium density residential zone in the SPA are in conformance with the General Plan Housing Element. Alternatives to the private automobile--internal pedestrian circulation, hiking and bicycle linkages to neighborhood serving commercial areas and easy access to transit stops--have also been provided by the Specific Plan. Opportunities for the restoration of architecturally and historically significant structures will be enhanced in the Historic Hercules area as well as opportunities for mixed residential/commercial use. These factors fulfill many of the objectives of the Housing Element.

6.3.4 Open Space, Recreation and Conservation Elements

The current Open Space, Recreation and Conservation Element of the Hercules General Plan recognizes and preserves the saltmarsh habitat and baylands (tidal mudflats) north of the railroad grade, but does not recognize the special protection status afforded to the freshwater wetlands and the riparian zone along Refugio Creek. The General Plan does recognize the need for relocation of Refugio Creek and includes designation of a multi-purpose open space corridor as does the Specific Plan. As discussed in Chapter 5, this corridor would provide the land area needed for mitigation of wetlands which would be disturbed by development within the SPA. Development guidelines for habitat protection and wetlands mitigation are discussed in Chapter 7.

The Specific Plan incorporates several other objectives of the Open Space/Conservation element such as the development of pedestrian linkages between public and private open space, tie-ins to local and regional trail systems, enhanced pedestrian access to San Pablo Bay and landscaped rights-of-way.

6.3.5 Seismic Safety Element

The Seismic Safety Element of the General Plan requires that seismic hazards be taken into account during the planning process for any proposed development. The objective is to reduce the loss of life and property and economic and social dislocation resulting from future seismic, geologic and fire hazards.

As part of the Seismic Safety Element, the City has adopted a Grading Ordinance that provides adequate guidance and control over seismic safety and geologic hazards issues within the SPA, including problems with poor soil foundation conditions, landsliding, flooding, soil erosion, fault rupture, and strong ground motion. In addition, the City has adopted the Uniform Building and Fire Codes to provide control over public safety in building design and construction standards. No additional special standards are required to control development and insure public safety within the SPA other than those identified in Chapter 7, General Development Guidelines.

Additional safety considerations incorporated in the Specific Plan are the flood control improvements to Refugio Creek and emergency roadway connections between Railroad Avenue and the Sycamore Avenue Extension, as well as the mainland and the Waterfront Commercial Area.

6.3.6 Noise Element

As stated in the General Plan, the basic objective of the noise element is to protect future citizens of Hercules from excessive and possibly detrimental noise levels. Some communities have adopted noise ordinances where rising noise levels have been a concern. The Hercules General Plan presents a range of noise levels for various land uses such as residential, schools, parks, commercial, and industrial from normally acceptable to clearly unacceptable. For Specific Plan purposes, it is preferable to establish a numerical standard. Table 7.2 (Chapter 7) provides more specific guidelines that could be implemented to minimize potential noise conflicts.

6.3.7 Summary

The Hercules Properties, Inc./Gelsar Specific Plan is a further refinement of the Hercules General Plan which adds more specific policy direction. As such, it will amend the text and mapping in the General Plan Land Use Element and supersede the Neighborhood 7 Plan within the Specific Plan Area.

7. DEVELOPMENT GUIDELINES

The purpose of these planning and design guidelines is to provide a framework to translate the land use concepts identified in Chapter 5 into more detailed requirements for City staff and developers to follow while implementing the plan. They are intended to aid in the achievement of the style, character and quality of development envisioned by the City. As individual parcels are developed within the Specific Plan Area (SPA), more detailed design criteria will be established for each development.

General guidelines for the entire SPA as well as guidelines for designated land use subareas are outlined in the following sections. All planning and design elements shall comply with current City codes; guidelines shall be applied through the City's architectural review process.

7.1 GENERAL GUIDELINES FOR THE SPA

7.1.1 Grading

- Grading within the SPA shall occur with no increase in discharge of sediments to wetlands, Refugio Creek, or San Pablo Bay. Measures to be implemented by the applicant/developers shall be identified in their erosion and sediment control plans, which are required by the City's Grading Ordinance.
- Grading plans for development in the SPA shall recognize that portions of the area lie within the 100 year flood plain, as identified by the Federal Emergency Management Agency's Flood Insurance Rate Map. The City shall require that all finished floor elevations within the SPA be constructed at least one foot above the projected 100 year flood level.
- Cut and fill slopes shall blend with the existing terrain; berms, channels and swales shall be graded in such a way as to be an integral part of the grading and paved surface designed with smooth vertical transitions between changes in slope.
- Grading plans for development in the SPA shall recognize that portions of the area are within the Army Corps of Engineers Section 404 (wetlands) jurisdiction and that Section 404 permits for fill will be required. A detailed mitigation plan will be required which shall demonstrate local in-kind and amount replacement of lost wetlands.
- All other grading shall be designed in conformance with the City's Grading Ordinance.
- Where retaining walls are required, they shall be of a material compatible with the building architecture. Any retaining wall in close proximity to a public street is to be of masonry construction.

- Grading for specific site features shall be designed to meet the following standards:

Site Feature	Minimum* Slope	Maximum* Slope
planting areas	2%	3:1 (2:1)
parking lot pavement	1% (NA)	4% (NA)
driveway, access drives	1%	6% (20%)
pedestrian pavements (large "plaza" areas)	1% (NA)	2% (NA)
pedestrian pavements (sidewalks)	1% (2%)	8% (12%)

*Note: Where different, minimums and maximums from the existing City ordinance are noted in parentheses (); NA indicates that this category is not covered by that ordinance.

7.1.2 Seismicity

- Prior to approving any development within the SPA, the City shall require the applicant/developer to submit a report by a California certified engineering geologist, documenting the capacity of the land to support development and the measures required to ensure public safety and protection of property. Measures identified in the report shall be incorporated as conditions for approval of the development – project. The design of structures shall at a minimum conform with standards identified in the Uniform Building Code adopted by the City.

7.1.3 Wetlands and Habitat Protection/Mitigation

- Prior to any development within the SPA, a plan for the creek relocation and the replacement of wetlands shall be completed by the developer. Lands should be surveyed to delineate the extent of wetlands or endangered species habitat and to better establish the location and statutory authority. Areas identified as endangered species habitat shall be treated as required by State and Federal laws. The diking, filling, or dredging of wetlands shall be prohibited, except where the wetland is small and isolated, difficult to manage, and already largely disturbed by nearby activities, or where mitigation plans have been agreed to by Regulatory Agencies and result in no significant net loss in wetland acreage or biotic resource value.
- Formal review of the plan by the Army Corps of Engineers, U.S. Fish and Wildlife Services, San Francisco Bay Conservation and Development Commission, and California Department of Fish and Game shall be conducted. The plan shall be amended as necessary to conform to agency regulations.

7.1.4 Hazardous Waste

- The City should establish a City-wide program for the testing and analysis of any potentially hazardous materials identified during future geologic and soil foundation investigations within the SPA. The results of any laboratory analysis shall be provided to the City Public Works Department. Appropriate remedial actions will be developed and implemented in consultation with the California Department of Health Services and the San Francisco Bay Regional Water Quality Control Board.
- The City should establish a warning and evacuation program to be implemented in case of an accidental toxic spill. Police and Fire department evacuation plans shall be prepared and updated periodically.

7.1.5 Open Space and Pedestrian Circulation

- Open space and buffer zones within the SPA will be design to align with and enhance existing local and regional open space networks and trails systems.
- A system of pedestrian and bicycle paths shall be designed to promote the free and safe movement of pedestrians and cyclists through the SPA; pedestrian paths shall be located within the building setback zones or street rights-of-way; bicycle paths shall be located within the street right-of-way. Both shall be linked to the Refugio Creek open space corridor/wetlands mitigation area. Pedestrian and bicycle paths in the creek corridor shall be constructed of concrete.
- Pedestrian and bicycle access (separate from vehicular access) shall be provided from public streets and parking lots to building entries.
- All sidewalks shall have an unobstructed width of at least five feet (5') and a minimum width of eight feet (8') where attached to a curb.
- Bollards shall be installed at all intersections with streets to alert the pedestrian or cyclist and discourage vehicular access. Bollards should be removable to permit emergency access.
- Bicycle paths should be constructed of concrete; bicycle parking, including lockable bicycle racks, shall be provided for each building and shall be screened from the building entry in a manner approved by the City.
- Pathways and walkways should be designed to meet the needs of a variety of users. Unique surfaces on pathways within the creek corridor can be used to isolate certain activities such as rollerskating or jogging. Access for the handicapped shall be provided as required by state law.

7.1.6 Circulation

- The location and design of roadways should be integrated into the natural slope of the land and its drainage where feasible.

- Circulation patterns should discourage through traffic into residential areas. Roadway layouts should discourage use of residential streets by industrial and commercial traffic.
- No driveways shall be located within 100 feet of an intersection (measured from intersection stop line to center line of driveway).
- Only right-turn in and right-turn out driveways shall be permitted within 200 feet of an intersection.
- Adjacent driveways should be separated by a distance of at least 100 feet.

7.1.7 Parking

- No on-street parking shall be permitted on any of the public roadways within the SPA, with the exception of Historic Hercules.
- The number of on-site parking spaces shall conform to the requirements in the City's zoning ordinances.
- Entrances to parking aisles shall be located at least 50 feet from a driveway entrance to a public street.
- The City shall encourage joint use of parking spaces where adjacent land uses have differing peak usage.
- Separate vehicular and pedestrian access and circulation systems shall be established -- by curbing, pathways and differential paving materials.

7.1.8 Transit and TSM

It is recognized that transit services and transportation system management (TSM) are integral elements of an efficient transportation system and provisions should be made to facilitate their usage. Guidelines pertaining to these elements are as follows:

- Bus turn-out bays with shelters shall be incorporated into the roadways at locations generally indicated in Figure 5.2.
- A transfer station shall be incorporated into the development of the commercial parcel between Alfred Nobel Drive and San Pablo Avenue to enhance WestCAT's fixed route service and access to the commercial uses. As a maximum it would require a bus shelter and a lane on a side street which could accommodate four buses. If this facility is not developed during the first five years of the plan time frame, additional bus turn-out bays may need to be provided along John Muir and Sycamore, off the eastern end of the Specific Plan Area.
- The City shall encourage the implementation of flexible work hours and car/van pools by major employers in the Specific Plan Area.
- The City shall be responsible for developing and implementing a City-wide TSM program.

7.1.9 Storm Drainage

- Storm water shall be detained on site where necessary to prevent flooding downstream, and in conformance with a master drainage plan which will be developed for the entire SPA by the property owner/developer.
- The siting, design and construction of each segment of the storm drainage system for the SPA will be coordinated with the storm drainage master plan through the City Engineer, and must conform to Regional Water Quality Control Board requirements.
- Where roadways pass over the storm drainage system, low profile culvert sections should be used. Each crossing should be designed to convey the 100 year peak storm discharge and conform to any existing underground facilities.
- All construction and materials required for the storm drainage system and any related appurtenance shall be designed to all of the City's Standard Specifications and Plans.
- Where concentrated storm water flows across a paved surface, that surface shall be of concrete.

7.1.10 Utilities

- All utilities shall be placed underground.
- Pad-mounted transformers, utility connections, and meter boxes should be integrated into the site plan. Retaining walls at utility boxes will be of masonry construction.
- Within all subdivisions, sewers shall be designed in accordance with the City of Hercules Standard Specifications and Plans.
- Fire hydrant locations shall be fixed according to Rodeo/Hercules Fire Protection District.
- Gas, electric and telephone utilities are considered to have no special design requirements other than those required by the individual agencies involved.

7.1.11 Buildings

- The architectural style of new buildings and the design of site furnishings should have a contemporary appearance but should utilize elements which complement the existing architectural and landscape character of Hercules.
- Large, continuous surface treatments of a single material should be minimized. In the event that this is done, textural changes or relief techniques should be introduced to produce a play of shadows on the surface.
- Large buildings should have facades that include variations in form and texture which relate to the human scale and experience.

- Where a Commercial, Industrial or R&D/Office area abuts a residential neighborhood, drastic and abrupt scale changes should not be allowed. The transition from residential to industrial should be gradual--starting with smaller, less intensive uses near the residential with the largest and most intensive uses farthest from the residential.
- Building form shall reflect the existing topography of the SPA.
- Building development shall not exceed two stories until the fire district is able to add personnel and equipment per the Fire District's five-year plan or unless development fees are assessed to provide same as a condition of approval. As an alternative, a project sponsor who brings in buildings higher than two stories could advance the money required for additional equipment and personnel; this advance could be repaid from the City's fire mitigation fee or its benefit assessment district.
- Building construction and design shall be used to create a structure with equally attractive sides of high quality, rather than placing all emphasis on the front elevation of the structure and neglecting or downgrading the aesthetic appeal of the side or rear elevations of the structure. Any accessory buildings and enclosures, whether attached to or detached from the main building, shall be of similar quality and compatible design and materials. These controls apply to the rear side of buildings where that rear side is visible, such as a corner lot or where such buildings are located on the top of a slope.
- Exterior materials shall conform to and be in harmony with the external design of neighboring structures and the overall design of improvements described throughout these guidelines. The approval of exterior materials, including type, color, texture and durability and the extent of use of any single material or combination of materials shall be solely at the discretion of the City.
- To ensure the preservation of views, rooftop surfaces, equipment and accessories shall be reviewed by the City according to the following guidelines:
 - (a) The roof surface materials, texture and reflectivity shall be reviewed considering their effects on the views of other SPA and adjacent sites and structures.
 - (b) Rooftop mechanical equipment, vents and ducts, shall be screened, covered and installed in a manner which prevents obstruction or distraction of views of other sites and structures.
 - (c) Rooftop solar collectors, skylights and other potentially reflective rooftop building elements shall be designed and installed in a manner which prevents reflected glare and obstruction of views of other sites and structures.
 - (d) Rooftop radio, TV and microwave antennas and towers are prohibited unless specifically approved by the City as to their height and location.

7.1.12 Streetscapes

- The design of the streetscape should integrate, in a consistent and creative manner, plant materials, paths, landforms, soundwalls, lighting, furniture and signage to produce an attractive and functional environment.
- All landscaping should employ a mix of trees, shrubs, and ground covers, and turf grass where appropriate. The plant palette should be relatively limited and applied in groupings of similar species rather than a few plants of many different species planted together. Trees should be planted for shade, screening, textural interest and color.
- All landscaping should be designed, installed and maintained in accordance with xeriscape or arid landscape principles. The goals of xeriscape are to provide a low maintenance, water conserving, functional and attractive landscape through the use of drought tolerant California native plant materials.
- Live plant materials should be used in all landscaped areas. Gravel, colored rock, bark and other similar materials are not acceptable as ground cover material.
- The use of ground covers as lawn substitutes is encouraged in all medians, parkways and drainageways. The use of turf grass should be minimized and reserved for areas of high use or visibility.
- Automatic irrigation is required for all landscaped areas. Plants should be watered and maintained on a regular basis. Irrigation systems should be designed so as not to overspray walks, buildings or parking areas. The use of water conserving systems for shrub and tree planting is encouraged.
- The solar rights of property owners should be protected from encroachment (shadows between 10:00 a.m. and 2:00 p.m.) by any structures or vegetation in parks, medians, parkways and drainageways.
- The following guidelines apply specifically to street trees:
 - (a) Tree plantings should indicate a street hierarchy with larger trees along arterial streets and smaller trees on collector and residential streets.
 - (b) Tree plantings shall be symmetrical and of the same species on both sides of the streets along arterials. Treatment of drainageways, when adjacent to arterials shall complement this formalized row of trees.
 - (c) One tree species or pattern of species shall be planted consistently at regular intervals along the entire length of a street. Spacing intervals shall be no greater than 50 feet on center, and shall average 30 feet on center.
 - (d) A 5-foot wide planting strip shall be provided between the street curb and the sidewalk. Sidewalks shall have a minimum width of 5 feet.

Table 7.1

**HERCULES PROPERTIES INC./GELSAR SPECIFIC PLAN
PRELIMINARY STREETScape PLANTING RECOMMENDATIONS⁽¹⁾**

Trees for Arterial Streets

<u>Botanical Name</u>	<u>Common Name</u>	<u>Height (2)</u>
Platanus acerifolia	London Plane Tree	50'
Quercus agrifolia	Coast Live Oak	50'
Quercus coccinea	Scarlet Oak	60'
Quercus lobata	Valley Oak	70'

Trees for Collector and Residential Streets

<u>Botanical Name</u>	<u>Common Name</u>	<u>Height (2)</u>
Platanus acerifolia	London Plane Tree	50'
Quercus ilex	Holly Oak	50'
Sapium sebiferum	Chinese Tallow Tree	35'
Nyssa sylvatica	Tupelo	60'
Pyrus calleryana 'Aristocrat'	Aristocrat Pear	45'
Alnus Cordata	Italian Alder	35'
Metrosideros tomentosa	New Zealand Christmas Tree	35'

Trees for Medians

<u>Botanical Name</u>	<u>Common Name</u>
Platanus acerifolia	London Plane Tree
Pyrus calleryana 'Aristocrat'	Aristocrat pear
Prunus serrulata 'Kwanzan'	Flowering Cherry

Accent Trees

<u>Botanical Name</u>	<u>Common Name</u>	<u>Feature</u>
Prunus serrulata 'Kwanzan'	Flowering Cherry	Flowering
Populus nigra 'Italica'	Lombardy Poplar	Vertical
Washingtonia robusta	California Fan Palm	Vertical

- Notes: (1) This table will be superceded by the Landscape Guidelines for the City now being developed by Leffingwell Associates; tree species were selected for their characteristic form and special features as well as their adaptability to microclimatic conditions in Hercules.
- (2) Probable height at maturity.

Source: EDAW, Inc.

- (e) Where trees are planted in medians, the plantings shall be continuous and at regular intervals. Spacing intervals shall be no greater than 50 feet on center. Adequate sight lines shall be maintained at intersections.
- (f) Different tree species should be planted along intersecting arterials and collectors (Table 7.1).
- (g) Plantings should be designed and maintained to insure good visibility at street intersections and at driveways to prevent obstruction of paths.
- (h) Tree plantings shall be consistent with the proposed City-wide Landscape Plan.
- (i) Landscaped areas within street rights-of-way will be maintained under the City Lighting and Landscape Maintenance District.
- The approaches to the intersections of John Muir at San Pablo Avenue and Sycamore Extension at San Pablo should receive special treatment as **gateways** to the SPA. Special landscape design and signage should strengthen this entryway theme by developing “portals” at these intersections.

7.1.13 Lighting

- Light fixtures and standards shall meet the City’s safety standards and shall be employed throughout the length of each street. In order to provide a consistent appearance throughout major portions of the SPA, it is recommended that a maximum of one lighting fixture style be used within each of the following land use areas; the same style fixture could be used in more than one of these areas:
 1. Historic Hercules/Waterfront Park/Waterfront Commercial (treated as one area)
 2. Medium Density Residential
 3. Mixed R&D/Office/Relocated Plant Area (both subareas treated as one area)
 4. Light Industrial (all subareas treated as one area)
 5. Regional Commercial
 6. Refugio Creek Corridor
- Illumination standards for arterial collector and residential streets should reflect the different right-of-way widths and functions.
- Parking and roadways in Commercial, Industrial or R&D/Office areas should use high pressure sodium lamps.

7.1.14 Urban Furniture

- A consistent style for outdoor urban furniture shall be adopted and employed for use in major portion of the Specific Plan Area. These land use areas are outlined 7.1.13 above.
- Benches, bollards, trash receptacles and other furnishings should be provided at convenient locations within the SPA where pedestrians are likely to congregate.

- All furnishings should be resistant to the weather and vandalism and should be locked or fixed in place in a manner satisfactory to the City.

7.1.15 Signage

- All official street signs shall meet City standards; directional signs shall meet Caltrans safety standards. One sign style shall be employed throughout major portions of the Specific Plan Area. These land use areas are outlined 7.1.13 above.
- Signs identifying neighborhoods, industrial and commercial areas shall be integrated with the design of the subarea streetscape.
- Future developers shall prepare a coordinated environmental graphics plan for each subarea.

7.1.16 Walls and Fences

- Walls and fences should be designed for aesthetic as well as functional purposes. Materials should be selected and employed to create visually interesting patterns, or lines.
- Soundwalls or fences used to buffer adjacent land uses shall be 6 feet in height.
- Soundwall materials should have an irregular surface to reduce glare and reflections and generate visual interest.

7.1.17 Noise

- The use of unbroken solid walls along arterial streets shall be limited to provide noise attenuation in order to avoid a monotonous, walled-city appearance. Landscaped buffers including berms are preferred to provide a separation between noise-sensitive areas and noise sources.
- The location of noise-sensitive uses on sites with greater than 60 dBA Ldn shall be avoided where possible.
- New industrial projects shall be designed so that noise is not perceptible at any exterior lot lines. Reduced noise levels can be achieved with additional setbacks where necessary. Refer also to Environmental Performance Standards, Section 7.1.18 and Table 7.2.

7.1.18 Environmental Performance Standards

- The City shall establish a buffer zone on City property around the Sewage Treatment Plant, within which development would be restricted, to minimize public health risks from accidental chlorine spills. Inappropriate uses would include residential, commercial, industrial, or public buildings. Appropriate uses include open space, low-intensity outdoor recreational activities in a natural or near-natural state, flood control management, and natural wildlife sanctuaries and habitat.

Table 7.2

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
NEIGHBORHOOD GOAL SOUND LEVELS (AMBIENT SOUND LEVEL IN DBA - 1985)**

Land Use	Time of Day	Rural- Suburban	Suburban	Suburban- Urban
Single Family	Day	50	55	60
	Evening	45	50	55
	Night	45	45	50
Multiple Residential	Day	50	55	60
	Evening	50	50	55
	Night	45	50	55
Commercial	Day		60	65
	Evening		55	60
	Night		55	60
Industrial	All hours		70	75

Note: Existing average residential ambient levels are 40-60 dBA.
Existing average commercial and industrial ambient sound levels are 50-75 dBA.
Day: 7 a.m. to 7 p.m.
Evening: 7 p.m. to 10 p.m.
Night: 10 p.m. to 7 a.m.

Source: Noise Element, Pinole
General Plan (1975).

- The City shall require the establishment of a solid wall and/or a vegetative buffer around the Treatment Plant's perimeter by adjacent property owners to help control noise and odors and to screen the facility from all adjacent land uses.
- No use shall be permitted to exist or operate on any lot which:
 - (a) Emits dust, sweepings, dirt, cinders, fumes, odors, radiation, gases, vapors or discharges liquid or solid wastes or other harmful matter into the atmosphere, land, or any body of water which may adversely affect:
 - (i) the health and safety of persons within the area, or
 - (ii) the health and safety of persons in adjacent areas, or
 - (iii) the use of adjacent properties.
 - (b) Discharges waste or any harmful substance into any public sewer or storm drainage system that would damage sewer operations.
 - (c) Produces intense glare or heat unless such use is performed only within an enclosed or screened area and then only in such manner that the glare or heat emitted will not be discernible from any exterior lot line.
 - (d) Allows the visible emissions of smoke (outside any building) other than the exhausts emitted by motor vehicles or other transportation facilities, or allows any emissions in violation of any regulation of any public body having jurisdiction. This requirement shall also be applicable to the disposal of trash and waste materials.
 - (e) Creates a ground vibration that is perceptible, without instruments, at any point along any of the exterior lot lines.

7.2 DESIGN GUIDELINES FOR SUBAREAS

Thirteen subareas were identified in the proposed development plan for the SPA (Chapter 5). Consistent site and building guidelines can be applied to these subareas so that a unified image, in harmony with the surrounding environment, can be achieved. For the purpose of a comprehensive design approach, the subareas can be aggregated as follows:

1. Historic Hercules/Waterfront Park/Waterfront Commercial
2. Medium Density Residential
3. Mixed R&D and Office/Relocated Plant Area
4. Light Industrial
5. Regional Commercial
6. Creek Corridor and Wetlands Mitigation Area

Specific planning and design guidelines for these aggregated subareas are outlined in the sections below and summarized in Table 7.3. These subareas are also subject to all recommendations outlined under General Guidelines in the previous section.

Table 7.3

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
SUBAREA DEVELOPMENT GUIDELINES SUMMARY**

Subarea	Height Limit⁽¹⁾	Maximum Lot Coverage	Setback from Street Right-of-Way	Landscape Requirements
Historic Hercules	(2)	(2)	(2)	(2)
Waterfront Park	NA	NA	NA	NA
Waterfront Commercial	25 feet (1-2 stories)	30%	NA	NA
Medium Density Residential	35 feet (2 stories)	6-10 du/ac	20 feet	30% (usable open space)
Mixed R&D/Office/ Relocated Plant Area⁽³⁾	40 feet (3 stories)	45%	30 feet	40%
Light Industrial	35 feet (2 stories)	60%	30 feet	30%
Regional Commercial	35 feet (2 stories) ⁽⁴⁾	30%	30 feet	20%
Open Space	NA	NA	NA	NA

- Notes: (1) See Sections 7.2.3 and 7.2.5, Building Architecture.
 (2) All new structures shall conform to existing conditions.
 (3) See Section 7.2.3, Building Architecture, Visual Impact Mitigation for Unenclosed Structures.
 (4) Hotel height limit is 80 feet.
 NA - Not Applicable

Source: EDAW, Inc.

7.2.1 Historic Hercules/Waterfront Park/Waterfront Commercial

The design intent of this subarea is the development of a pedestrian-oriented town center and waterfront commercial are to be used by residents and visitors. It should have a unified appearance and scale.

- All new structures shall conform with existing historic building heights, setbacks, scale, detailing and materials.
- Landscape treatment shall be designed to enhance the streetscape and to provide a strong visual and spatial connection between Historic Hercules and the Waterfront.
- Once the City Hall and Police Department are relocated, Historic Hercules area shall have an in-depth study made to determine its ultimate use. This shall be undertaken by the owner/developer as part of the initial request for development entitlements.

7.2.2 Medium Density Residential

The recommended use in this subarea is single condominium or townhouse units. The design intent is to create a neighborhood that is compatible with adjacent residential development.

- This zone should be developed with a range of 6 to 10 dwelling units per acre.
- A mix of housing types and unit designs should be provided.
- The subdivision should be designed to incorporate landscape buffers between adjacent residential, Historic Hercules, R&D/Office and Industrial zones, as appropriate (Figure 5.1).
- While maintaining good circulation, street orientation should allow for a passive solar benefit. For example, residential streets running east-west should allow the face and rear of houses to be oriented to the north and south, thus allowing the greatest access for solar heating and cooling.
- Internal subdivision circulation should emphasize the use of cul-de-sacs and short loop streets.
- Unit setbacks from streets should be varied a minimum of 6 feet to provide a more interesting streetscape.
- A mini-park and play area should be centrally located in the residential area and should be linked to the Refugio Creek corridor trail with either landscaped pedestrian walkways or improved sidewalks.
- The character and scale of the new neighborhood should complement the adjacent neighborhoods, although it is not necessary that they be identical.
- Public street intersections shall be offset a minimum of 150 feet to ensure smooth and safe traffic flow. "T" intersections are encouraged over four-way intersections.

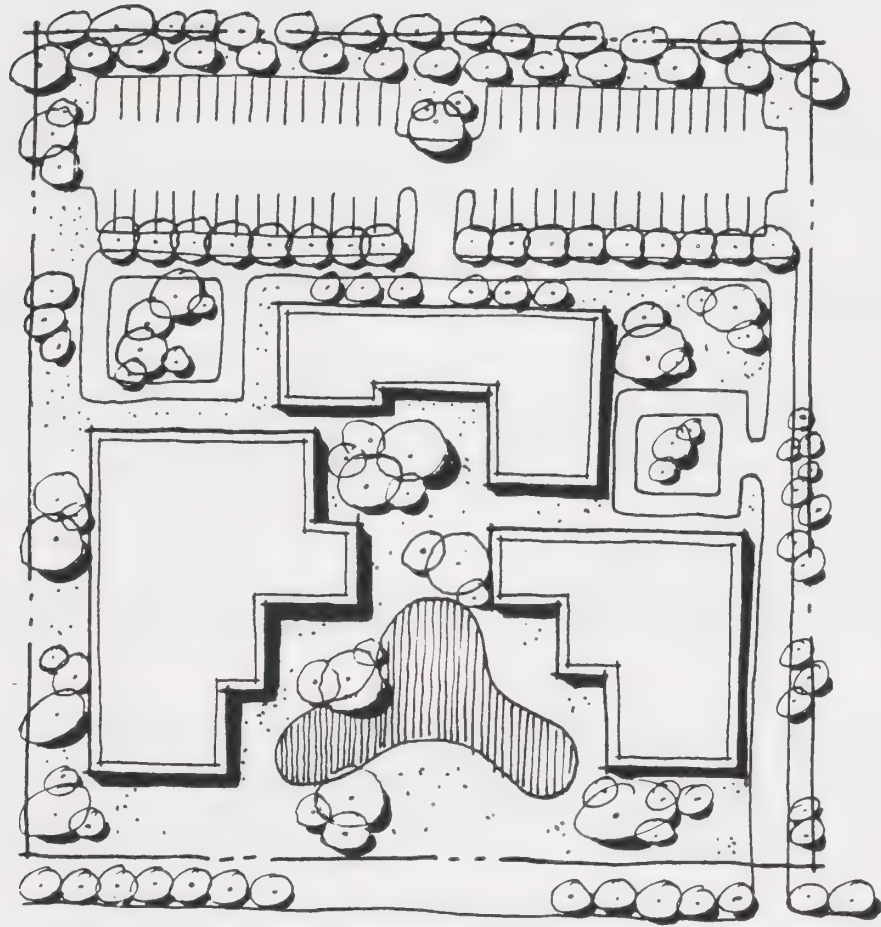
- Units should have centralized parking facilities. Parking areas should be visible from the adjacent street to provide safety and allow easy police surveillance; however, landscaped berming should be provided in the setback to minimize visual impact. Parking areas which completely surround a building should be avoided; a minimum of 3 spaces per dwelling unit shall be provided for owner and guest parking. Two of the three spaces shall be in garages attached to the units.
- Homes should be oriented to maximize view opportunities, but unrestricted views should not be expected and the privacy of others should not be sacrificed.

7.2.3 Mixed R&D and Office/Relocated Plant Area

The intent of the development guidelines for the Mixed R&D and Office subareas is to create a campus-like environment with high quality structures and attractive site amenities. Enclosed single- and multi-occupant structures only are allowed. A schematic layout for the Mixed R&D/Office subarea is shown in Figure 7.1.

Siting Requirements

- No building may occupy more than forty-five percent (45%) of any site.
- Minimum lot size shall be one acre.
- Minimum street frontage shall be 100 feet.
- Minimum landscape or open space coverage for each site shall be 40 percent; open space is defined as unpaved, non-vehicular areas; it does not include unenclosed equipment areas. Landscape planting can include planted medians in parking lots.
- A 30-foot minimum landscape setback from the property line to the building is required from all arterial public streets; sidewalks and bikeways shall be permitted within this setback; parking shall not be permitted within this setback.
- A 20-foot minimum landscape setback from the property line to the building is required on collector or local streets providing direct access to specific parcels; parking shall not be permitted within this setback.
- The sides of any building shall be setback at least 25 feet from the nearest point on the side property line and 30 feet from the nearest rear property line; parking shall be permitted within side and rear setbacks. Rear setbacks shall be subject to the following restrictions:
 - (1) Permanent and unobstructed fire and police access shall be provided between any building and the rear property line of a site.
 - (2) Where a slope bank at least five (5) feet high exists at any point along the rear property line of a site, (a) any building shall be setback at least thirty (30) feet from the top or toe of the slope along such property line, and (b) any portion of the parking area on the site shall be setback at least ten (10) feet from the top or toe of the slope along the property line.



Typical R&D/Office Site Concept

Not To Scale

Figure 7.1

- Underground structures, roof overhangs (4 feet or less), steps and walkways, fences, landscaping, transformers, trash enclosures and signs are excluded from rear and side, but not from front setback provisions.
- Developers shall provide visual analyses (photo montage) as part of the design review process to determine the impact of their development on views to the Bay and on adjacent development.

Building Architecture

- Maximum height of any portion of the building shall be three stories, or 40 feet, whichever is less measured from the midpoint of the lot at the street curb. On corner lots, the average of the lowest midpoint elevation shall be used.
- Preferred building materials shall be concrete, brick, stucco, masonry, marble, granite, glass, tile and architectural metal. Metal buildings, such as the “Butler” type, are not permitted.
- The predominant coloration of building materials shall be light tones and earth tones; accent colors shall be limited to no more than 10 percent (10%) of the building wall surface; roof colors shall be compatible with building colors.

Landscape Treatment

- The Landscape Plan required for submission by the applicant as part of the design review process must be prepared by a licensed landscape architect with experience in California.
- Landscaping in accordance with the approved plan, by development phase, must be installed before building occupancy except where seasonal limitations prohibit, in which case the landscaping must be installed within sixty days from the time planting operations can be undertaken. When seasonal conditions do not permit planting, erosion control measures must be taken to the satisfaction of the City.
- Minimum landscape or open space coverage for each site shall be 40 percent; open space is defined as unpaved, non-vehicular areas. Landscape planting can include planted medians in parking lots.
- Perimeter landscaping is required adjacent to street frontages. These perimeter areas should not be less than 15 feet in width and should include trees, shrubs, and ground cover.
- Landscaped areas adjacent to buildings are recommended.
- Both perimeter and interior landscaping shall include canopy-type trees. The location and spacing of trees is dependent on the type of tree used, but the effect should be a consistent tree cover which will provide shade. These trees can help provide an identifiable image to the development.
- Entryways and parking lots should be well defined and recognizable to motorists and should include elements such as lighting and signage.

- Pedestrian amenities (outdoor dining areas, court games, trails) and special features areas (sculpture, courtyards) are encouraged.

Visual Impact Mitigation--Unenclosed Equipment

It is the intent that development within the SPA be visually compatible with adjacent land uses. The following guidelines are mandatory for newly constructed, reconstructed or relocated use of open equipment; design review and approval by the City would also be required.

- New or relocated plant equipment will be 90 to 95 percent enclosed.
- Equipment that is not enclosed will be painted the same color or be of the same material as surrounding buildings.
- Vertical equipment elements (of new or related facilities) shall not exceed the 40-foot building height limit and shall be in scale with the massing of surrounding buildings.
- Equipment that is not enclosed will be separated from public right-of-way by buildings that are enclosed; these buildings shall respect the setback requirements in this section of the Specific Plan.
- Views of equipment that is not enclosed shall be screened (by earth berms, dense evergreen vegetation, masonry walls or some combination of these elements) from higher vantage points in the adjacent Historic Hercules and Northshore Business Park, from the pedestrian crossing to Hercules Point and from roadway corridors and pedestrian rights-of-way. Screening elements shall meet the design criteria in this section.
- A firm schedule for site clean-up and complete screening of exposed plant equipment will be set forth in a development agreement to integrate these activities with the overall schedule for the development of the SPA.

Parking, Loading Areas, On-Site Circulation

- Parking shall not be permitted on any street or drive, or any place other than parking areas located on building sites.
- Parking areas should be easily accessed from the street so that circulation to parking areas does not interfere with other site activities.
- Visitor parking should be located near the entrance of the building and should be clearly marked.
- Automobile parking shall be separated from loading areas and truck parking areas.
- Landscaped islands shall be provided in parking lot interiors.
- The setback space between public streets and visitor parking lots shall be fully landscaped. Where possible, berming shall be provided in order to screen parked cars.

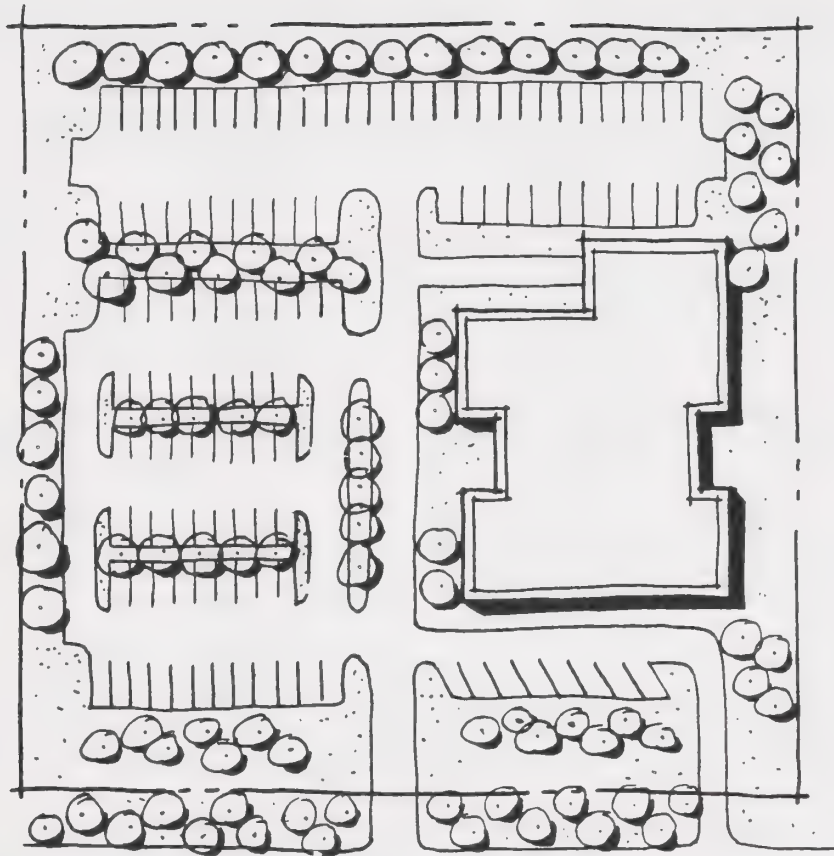
- Where berms are not possible due to space limitations, the parking shall be screened from public streets through use of trees and/or appropriate shrub plantings or screen walls; minimum height of the screening shall be three feet, six inches.
- Concrete curbs shall be installed around all landscaped areas to contain and protect plant materials.
- Well defined pathways shall be provided to separate pedestrian and vehicular movement.
- Loading facilities should not be located at the front of structures. When it is not possible to locate loading facilities at the rear of the building, loading docks and loading doors should not dominate the frontage and should be screened from the street by landscaping and shall be offset from driveway openings.
- Truck loading shall not be permitted between the building and the street, unless the buildings are setback from the curb a minimum of 125 feet and doors are screened by berms and/or fences, and landscaping is provided.
- All loading activity, including turnaround and maneuvering, shall be made on-site.

Lighting and Signage

- Lighting should be placed where it can best aid in illuminating activity areas. The site should not be overly lit. Electroliers should be scaled in size to match the magnitude of areas to be lit.
- Area lighting should be directed predominantly downward and shall be placed to prevent glare or excessive spray of light on neighboring sites.
- Accent illumination should be provided at key locations such as building entries, driveway entries, etc.
- Pedestrian walkways, plazas or other activity points should be illuminated.
- Lighting or highlighting of building facades is permitted but should be sensitive, subtle and not excessive, as determined by the City's design review process.
- All signage must be approved under the provisions of the City's Sign Ordinance.

Screening and Fencing

- All exterior service areas should be screened from view with a wall or fence of a minimum height of 8 feet (8'). Exterior service areas, such as loading docks or delivery areas, are not to be considered as open space.
- Utility company equipment and roof-mounted equipment shall be screened from view.



Typical Light Industrial Site Concept

Not To Scale

Figure 7.2

- (2) Where a slope bank at least five (5) feet high exists at any point along the rear property line of a site, (a) any building shall be setback at least twenty (20) feet from the top or toe of the slope along such property line, and (b) any portion of the parking area on the site shall be setback at least ten (10) feet from the top or toe of the slope along the rear property line.
- Underground structures, roof overhangs (4 feet or less), steps and walkways, fences, landscaping, transformers, trash enclosures and signs are excluded from rear setback provisions.
- Developers shall provide visual analyses to determine the impact of their development on views to the Bay and on adjacent development.

Building Architecture

- Maximum height of any portion of the building shall be two stories, or 35 feet, whichever is less measured from the midpoint of the lot at the street curb. On corner lots, the average of the midpoint elevation prevails.
- Preferred building materials shall be concrete, brick, stucco, masonry, marble, granite, glass, tile and architectural metal. Metal buildings, such as the “Butler” type, are not permitted.
- The predominant coloration of building materials shall be light tones and earth tones; accent colors shall be limited to no more than 10 percent (10%) of the building wall surface; roof colors shall be compatible with building colors.
- – Exterior building requirements shall comply with those set forth in the General Guidelines; building interiors, however, can be developed as flexible space to accommodate multiple users; a minimum of 1000 gross square feet of floor area and a minimum ceiling height of 14 feet will be required in the design of these spaces.
- Prefabricated Butler-type corrugated metal buildings shall be prohibited; all building materials shall be subject to the approval of the City.

Landscape Treatment

- The Landscape Plan required for submission by the applicant as part of the design review process must be prepared by a licensed landscape architect with experience in California.
- Landscaping in accordance with the approved plan, by development phase, must be installed before building occupancy except where seasonal limitations prohibit, in which case the landscaping must be installed within sixty days from the time planting operations can be undertaken. When seasonal conditions do not permit planting, erosion control measures must be taken to the satisfaction of the City.
- Minimum landscape or open space coverage for each site shall be 30 percent; open space is defined as unpaved, non-vehicular areas. Landscape planting can include planted medians in parking lots.

- Perimeter landscaping is required adjacent to street frontages. These perimeter areas should not be less than 15 feet in width and should include trees, shrubs, and ground cover.
- Landscaped areas adjacent to buildings are recommended.
- Both perimeter and interior landscaping shall include canopy-type trees. The location and spacing of trees is dependent on the type of tree used, but the effect should be a consistent tree cover which will provide shade. These trees can help provide an identifiable image to the development.
- Entryways and parking lots should be well defined and recognizable to motorists and should include elements such as lighting and signage.
- Pedestrian amenities (outdoor dining areas, court games, trails) and special features areas (sculpture, courtyards) are encouraged.

Parking, Loading Areas, On-Site Circulation

- Parking shall not be permitted on any street or drive, or any place other than parking areas located on building sites.
- Parking areas should be easily accessed from the street so that circulation to parking areas does not interfere with other site activities.
- Visitor parking should be located near the entrance of the building and should be clearly marked.
- Automobile parking shall be separated from loading areas and truck parking areas.
- Landscaped islands shall be provided in parking lot interiors.
- The setback space between public streets and visitor parking lots shall be fully landscaped. Where possible, berming shall be provided in order to screen parked cars.
- Where berms are not possible due to space limitations, the parking shall be screened from public streets through use of trees and/or appropriate shrub plantings or screen walls; minimum height of the screening shall be three feet, six inches.
- Concrete curbs shall be installed around all landscaped areas to contain and protect plant materials.
- Well defined pathways shall be provided to separate pedestrian and vehicular movement.
- Loading facilities should not be located at the front of structures. When it is not possible to locate loading facilities at the rear of the building, loading docks and loading doors should not dominate the frontage and should be screened from the street by landscaping and shall be offset from driveway openings.

- Truck loading shall not be permitted between the building and the street, unless the buildings are setback from the curb a minimum of 125 feet and doors are screened by berms and/or fences, and landscaping is provided.
- All loading activity, including turnaround and maneuvering, shall be made on-site.

Lighting and Signage

- Lighting should be placed where it can best aid in illuminating activity areas. The site should not be overly lit. Electroliers should be scaled in size to match the magnitude of areas to be lit.
- Area lighting should be directed predominantly downward and shall be placed to prevent glare or excessive spray of light on neighboring sites.
- Accent illumination should be provided at key locations such as building entries, driveway entries, etc.
- Pedestrian walkways, plazas or other activity points should be illuminated.
- Lighting or highlighting of building facades is permitted but should be sensitive, subtle and not excessive, as determined by the City's design review process.
- All signage must be approved under the provisions of the City's Sign Ordinance.

Screening and Fencing

- All exterior service areas should be screened from view with a wall or fence of a minimum height of six feet (6'). Exterior service areas are not to be considered as open space.
- Utility company equipment and roof-mounted equipment shall be screened from view.
- The design of fencing, trash enclosures and similar accessory site elements should be compatible with the architecture of the building and should be of similar quality and materials.
- Fencing and walls shall be designed of masonry or wood, without gaps or separation, and of an adequate height to guarantee preservation of privacy for adjacent residential uses.
- Long expanses of fences or wall surfaces should be architecturally designed to prevent monotony.

7.2.5 Regional Commercial

The intent of the design guidelines for the Regional Commercial subarea is to promote the development of a viable, high quality mixed-use center that can compete successfully with similar centers within its trade area.

Building Architecture

- An architectural theme shall be developed for the total site of the regional commercial subarea.
- The architectural style of new buildings should have a contemporary appearance but utilize elements which complement the existing character of Hercules.
- Large, continuous surface treatments of a single material should be minimized. In the event that this is done textural changes or relief techniques should be introduced.
- Large buildings should have facades that include variations in form and texture which relate to the human scale and experience.
- Height limit shall be three stories or 35 feet, whichever is less; the hotel height limit shall be no higher than seven stories or 80 feet, whichever is less.

Siting Requirements

- Each area of the commercial center (if it is phased) shall adhere to the standard of 30% building coverage, 45% parking, and 20% landscaped area, with a 5% contingency that can be divided between categories or applied entirely to one category.
- The minimum setback from the San Pablo Avenue right-of-way shall be 50 feet; a 30 foot minimum setback shall be required from all other streets.
- – Building massing should not create a continuous facade; instead, several pedestrian nodes should be created.
- Continuous arcades along the frontage of the commercial center are encouraged as they provide pedestrians protection from rain and summer sun and allow them to move from one shop to another without having to leave the arcade.

Landscape Treatment

- Both perimeter and interior landscaping shall include a predominance of canopy trees. The location and spacing of trees is dependent on the type of tree used, but the effect should be a consistent tree cover which will provide shade. Generally, a tree should be installed for every eight to nine parking spaces. These trees can help provide an identifiable image to the commercial center.
- The removal of any tree bordering San Pablo Avenue shall require the prior written approval of the City; any landscape treatment shall be coordinated with established guidelines for the San Pablo Avenue corridor.
- All undeveloped building pads should be landscaped prior to construction of the next phase of a project.

- Perimeter landscaping is required adjacent to all interior street frontages. These perimeter areas should not be less than 15 feet in width and should include trees, shrubs, and ground cover. Landscaped berms are encouraged to soften the transition between streets and parking lots.

Parking, Loading Areas, On-Site Circulation

- Parking areas should be designed and landscaped to minimize glare, reflection and the visual impact of large numbers of cars; the parking-to-square-footage ratio shall conform to the City's adopted ordinances.
- Pedestrian movement through the parking lot shall be separated from vehicular movement and shall be accommodated by paths or sidewalks. These paths shall be designated by special paving materials and shall be illuminated for night use. Orientation signs and the provision of shade trees are encouraged.
- Entryways to parking lots should be well defined and recognizable to the motorists as parking lots and include elements such as lighting and signage.
- Entryways shall be limited to one per 600 linear feet; random curb cuts for individual or satellite users are not permitted.
- Commercial center parking lots should provide resting and waiting areas with benches and landscaping. These areas should have some overhead coverage.
- All shopping areas must provide weather protected transit loading stations. Designs should be prepared in conjunction with the Circulation Plan for the SPA.
– (Figure 5.2).

Screening and Fencing

- All exterior trash and storage structures and service areas should be screened from view.
- The design of fencing, trash enclosures and similar accessory site elements should be compatible with the architecture of the building and should use similar materials.

Lighting and Signage

- For exterior lighting, both the fixtures and the overall lighting scheme should be conceived as part of the architectural and landscape design statement for the entire Regional Commercial subarea.
- Area lighting should be directed predominantly downward and shall be placed to prevent glare or excessive spray of light on neighboring sites.
- Accent illumination should be provided at key locations such as building and driveway entries.
- Pedestrian walkways, plazas or other activity areas should be illuminated.

- Lighting or highlighting of building facades is permitted but should be sensitive, subtle and not excessive, as determined by the City's architectural review process.
- All signage must be approved under the provisions of the City's Sign Ordinance, and must be compatible with the architectural theme which is approved for the Regional Commercial subarea during the design review process.

7.2.6 Open Space

Refugio Creek Corridor

Wetlands mitigation areas will be designed in conjunction with the proposed Refugio Creek relocation plan, which will be prepared by the owner/developer (Figure 8.1). Detailed mitigation plan designs must await the final design of the stream cross-section and relocated alignment. The following preliminary guidelines can, however, be established at this time.

- The stream channel will be designed for a maximum discharge of 1,900 cfs, based on the final recommended discharge specified by the Creek Relocation Stud. The precise channel configuration will be determined by a design study now in progress by the City Engineer. An additional 10- to 25-foot width along each side of the bank top corridor should be designated for riparian zone planting to satisfy the requirements of the Department of Fish and Game's 1603 process. Building setbacks from the top of the stream bank would be in addition to this 10- to 25-foot corridor.
- To meet the wetlands mitigation need for the replacement of approximately 16 acres, a specially graded and planted corridor should be developed. The wetland/riparian corridor could average a width of 200 feet for the entire length of the creek through the site (Figure 5.1).
- A diverse and natural emulating ecosystem should be established for the creek corridor. This should be achieved by establishing three ecosystem zones along the creek corridor; (1) a tidal flood zone; (2) a brackish estuarine zone; and (3) a riparian/freshwater floodplain zone. The brackish tidal pond (Pond C) should also be improved (Figures 3.7 and 5.1).
 - (a) The first 1,200 to 1,500 feet of channel (measured eastward from the creek outfall into the Bay) should be designed to allow high tide flooding of the corridor zone. A floodway design with first bank top elevation above the channel bottom of about 3.0 to 3.5 feet (National Geodetic Vertical Datum, or NGVD) would permit this, with a second bank top elevation of 7.5 to 8.0 (NGVD) at the corridor edge to confine flood flows. A stair-stepped or benched cross-section would result. This first zone should reestablish a salt marsh tidal ecosystem, including cordgrass, pickleweed and saltbush habitats. A low flow channel in the bottom would also be appropriate.
 - (b) Between the end of this zone and Pond C, the level of this terrace in the floodway corridor should be raised to 3.5 or 4.0 to 5.0 feet (NGVD) to allow establishment of a brackish marsh/high marsh zone, supporting such plants as alkali bulrush, pickleweed, alkali heath, jaumea, gum plant, marsh rosemary, and coyote bush. Bulrushes, tules, and cattails should be planted along the

enlarged Pond C, with such high marsh/upland plants as toyon, coyote bush, coastal sage, and perhaps ceanothus and coast live oak established in adjacent areas.

- (c) A riparian zone should be established above Pond C in a narrow band alongside the top of the creek bank. Willows, cottonwood, sycamore and alder would be appropriate overstory plants in this zone, with coast elderberry, rhamus, huckleberry, and hollyleaf cherry, the shrub species of choice.
 - (d) A freshwater wetlands zone should be established in a floodplain outward of the riparian zone. The floodplain would have an elevation of 5.5 to 6.5 feet, increasing to 8 to 10 feet at the outer edge of the 200-foot corridor. Small, undrained, shallow depressions (1 to 2 feet deep and up to 20,000 square feet in size) would also be graded into the floodplain to reestablish the seasonal wetland ponds. Blue-eyed grass would be an appropriate native grass for the non-depression basin portion of the floodplain, sown along with bush lupine, coastal sage, and monkey flower. The depression basins would be planted with sedges, reed grass, and perhaps deeper basins, with the common tule or California bulrush.
 - (e) A water management system, which will permit occasional changes in salinity, should be considered for mosquito abatement.
- The mitigation plan also recognizes the potential of the Refugio Creek Corridor as an amenity to the surrounding community. A linear open space area which is compatible with the habitat mitigation plan will be designed to include bicycle and pedestrian pathways.
 - Landscape design should integrate the pedestrian paths with plantings and berms. Paths should be gently curvilinear; paths and trees should not be located on tops of berms.
 - Plantings should be designed to restrict access to the channel and adjacent properties in most areas.
 - Fencing along adjacent property lines shall be coordinated to provide gated access to the creek corridor in some areas; gates can be closed to restrict access during periods of flooding.
 - No facilities requiring plumbing connections (restrooms, fountains) shall be installed in the drainageway or in the wetland-mitigation zone.
 - A landscape management program for the creek corridor should be developed.

Other Open Space Areas

An open space and recreation plan shall be developed for the entire SPA. The intent shall be to provide an open space network for employees who work on the site as well as for people living and working in adjacent areas who pass through the site. This system would be designed to provide safe places for walking and bicycling; it will also provide linkages to the Refugio Creek

Corridor as well as to adjacent open space areas, parks and trail systems. The open space network will be designed in accordance with the General Development Guidelines for the SPA, Section 7.1.5.

8. IMPLEMENTATION

The Hercules Properties, Inc./Gelsar Specific Plan is the first step of a multi-phased implementation process. It sets forth a framework for a comprehensive strategy for future land use development. This Chapter outlines the implementation process and makes specific recommendations for zoning, policy formulation, financing and development phasing.

8.1 THE SPECIFIC PLAN IMPLEMENTATION PROCESS

The implementation process envisioned for the Specific Plan Area will involve four phases. The phases represent a sequence of City-initiated and owner-initiated actions (Figure 8.1). Except as noted, the steps in each phase are the minimum required to address future land use within the SPA in a comprehensive way.

Impact mitigation measures, described in this Specific Plan document, are integral to the plan at its present level of detail. Future applications for specific development entitlements will be subject to further review and could require further mitigation.

In Phase I of the implementation process, the Hercules Properties, Inc./Gelsar Specific Plan, when approved, would be adopted as an amendment to the Hercules General Plan. New zoning text would then be developed (as described in 8.2, below) and the properties would be rezoned.

Phase II of the process would entail the assembly of application packages for development entitlements by the property owner or developer. Plans and studies relating to specific development projects would be prepared. Also during this phase, a detailed plan for the Special Study Area would be formulated. Because of the unique environmental issues associated with the Special Study Area, it will follow a somewhat different review and approval process. An inter-agency "round table" would be coordinated by the City (in Phase III) to facilitate this process.

During Phase III, the City would review and act on applications for development entitlements as well as coordinate them with the scheduling of any improvements in the Specific Plan Area that are to be paid for by the City and/or Redevelopment Agency. The inter-agency round table would also act on any plan proposed for the Special Study Area at this time.

In the final phase of the implementation process, the property owners or developers would have the option to initiate development agreements with the City, as defined by state law.

The Specific Plan Implementation Process has no prescribed time line. The length of the process may vary from project to project depending on the time required by the owner, the City or other agencies to complete each step.

8.2 ZONING

The recommended land use mix for the SPA proposes a greater diversity of uses than now exist. This will require that, except as noted, each subarea within the Specific Plan Area will be rezoned as part of the implementation process. This will be accomplished in one of the following ways: (1) a new zoning classification will be developed based on the final results of the Industrial Zoning Ordinance Study (Henn, Etzel and Mellon) which is in progress; (2) existing zoning will apply, such as in the proposed residential area which can be zoned R-2 under the City's existing

Regional commercial uses are expected to become feasible on the site in the early 1990's, and are projected to become increasingly feasible as the employment base of the Hercules area grows and regional access to the site on Route 4 is improved. As Table 5.1 indicates, 20.3 acres containing an eventual 375,000 square feet of space have been designated for regional commercial uses. The types of regional commercial uses projected would include 165,000 square feet of retail shops, restaurants, services, office space, as well as a 300 room hotel. Based on recent and projected demand for regional commercial space on the site, it is anticipated that absorption could begin in the early 1990's, and be completed by the late 1990's.

Residential development is currently feasible on the property, and is expected to remain feasible for the foreseeable future. As Table 5.1 indicates, 11.9 acres have been designed for residential development at a density of 6 to 10 units per acre. The type of residential development projected would be medium density condominiums or townhouses. Based on projected demand for housing on the site, it is anticipated that absorption of the 11.9 acres could be completed within a year or two years of initial marketing of the units.

Waterfront commercial development is currently feasible on the property, assuming adequate access across the railroad right-of-way to the waterfront. As Table 5.1 indicates the approximately 13.4 acres of waterfront property on the point have been designated for a mix of activities containing 58,000 square feet of space. The types of space included in the waterfront area would include restaurants, limited specialty retail shops, recreational facilities, a fishing pier, and public facilities such as a community conference or recreation center. If adequate access for service vehicles were provided to the waterfront, absorption of the waterfront space could begin immediately, and could be completed within a 10-year period.

Historic Hercules is a special area because of its location, topography and inventory of historic buildings. As Table 5.1 indicates, the 20.7 acres in this area have been designated for 90,000 square feet of commercial and public uses. Historic Hercules is unique: it is the only hilly waterfront area with historic buildings in the North East Bay, and has considerable charm. Because of its unique character, Historic Hercules would become a regional attraction, and would bring visitors to the area and to adjacent locations on the waterfront. Absorption of professional office and related retail and service uses in Historic Hercules could begin immediately, and would continue gradually. It is anticipated that absorption could be completed within 15 years of initial marketing.

5.2 PROPOSED DEVELOPMENT PLAN

The SPA is divided into 13 subareas which define general land uses; 10 different land use types are proposed. The location, plan rationale and criteria and proposed use for each of the subareas are described below and are illustrated in Figure 5.1. General and specific development guidelines for the SPA are outlined in Chapter 7.

Subarea 1: Historic Hercules

Location: Along both sides of Railroad Avenue in the vicinity of the former City Hall and Hercules Properties, Inc. offices.

Rationale: To take advantage of the center's combination of historic landscape and buildings, hilly terrain and bay views, which is unique in the North East Bay.

Use: A regional attraction, developed as a professional office, service and retail center to serve adjacent residential areas and visitors to the waterfront. High quality infill development matching the character and scale of the existing structures, streetscape improvements and pedestrian linkages to the waterfront park are recommended. The parking area proposed by the Waterfront Park Plan for the knoll south of Railroad Avenue will be relocated near the eastern (mainland) access to the existing railroad overpass. The lot will be sized to serve both Historic Hercules and the Waterfront Commercial subareas (Figure 5.1). It will be a public parking facility developed by the City. If, at a later stage of development, an alternative railroad overpass is designated the parking area will be moved to a new location adjacent to the overpass. On-street limited permit and handicapped parking serving business establishments will also be provided along Railroad Avenue. The size of these areas will be restricted so that the intimate scale and unique character of Historic Hercules will be retained; they will be provided by the developer.

Subarea 2: Waterfront Park Area

Location: The tidal mudflat area to the south and west of Hercules Point.

Rationale: To provide a pedestrian linkage between existing East Bay Regional Park lands in Pinole and the Waterfront Commercial subarea.

Use: Added to the mainland East Bay Regional Park lands as an ecological study area; no development other than pedestrian trail access from the Historic Hercules and the Waterfront Commercial subareas.

Subarea 3: Waterfront Commercial

Location: Hercules Point lands which are above mean sea level.

Rationale: To take advantage of spectacular views of the entire San Pablo Bay, potential water access and proximity to Historic Hercules.

Use: Recreation and tourism-generating activities such as restaurants, fishing pier, tourist-oriented retail, retail concessions and a small day-use conference or community center; the community center will be a complementary facility to the restored Hercules Powder Company clubhouse on Railroad Avenue; only pedestrian and service vehicular access will be provided over the railroad tracks by means of the existing trestle, which will be renovated; all public parking will be located on the mainland side of the railroad; pedestrian access from Historic Hercules and the East Bay Regional Parks area will be provided and will be separated from vehicular circulation.

Subarea 4: Special Study Area

Location: The tidal mudflat area and submerged lands to the north and east of Hercules Point.

Rationale: To provide an opportunity for innovative future land use proposals which can be developed within the existing regulatory framework.

Use: To remain undeveloped unless specific and innovative development proposals which are compatible with its ecological sensitivity and with regulatory agency requirements are proposed and permitted. An inter-agency “round table” will be established to coordinate, review and approve such proposals.

Subarea 5: Mixed R&D and Office

Location: The portion of the Hercules Plant site to the south and west of Refugio Creek.

Rationale: To take advantage of bay views and the proximity to Historic Hercules and the Waterfront.

Use: A campus-like environment for corporate headquarters use in high quality, enclosed single or multi-occupant buildings.

Subarea 6: Medium Density Residential

Location: Adjacent to and directly south of Historic Hercules on the southeastern side of the hill which faces the Olympian Hills townhouse development, and faces away from the chemical plant.

Rationale: To take advantage of the potential pedestrian amenities of Historic Hercules and the Waterfront and to provide a land use that is compatible with residential development on adjacent hillsides.

Use: Residential development with an average of 8 dwelling units per acre; primary entrance and service access will be through Historic Hercules via Railroad Avenue; the housing will be of a character and scale which will be compatible with the existing vernacular architecture of Historic Hercules; separate pedestrian linkages to Historic Hercules and adjacent parks and trails will also be provided. Sycamore Avenue Extension will be linked to the Historic Hercules visitor parking area; emergency only access will be provided from Sycamore Avenue Extension to the residential area; only residential traffic will be permitted through the housing area.

Subarea 7: Light Industrial

Location: Central portion of SPA away from San Pablo Avenue and the Waterfront and adjacent to the sewage treatment plant.

Rationale: This portion of the SPA does not enjoy the advantages of other areas--bay views or proximity to the freeway--and is, therefore, more suitable for low occupancy uses.

Use: Light manufacturing and assembly plants, industry related office, storage and service functions, and distribution centers enclosed in single or multi-occupant structures (see also Table 8.1); design criteria for structures will be identical to those for research and development and office use; lot coverage and landscape requirements will be less stringent.

Subarea 8: Relocated Plant Area

Location: The portion of the Hercules Plant site to the north and east of Refugio Creek.

Rationale: A compact land area within which the usable plant equipment that would be most difficult to move is located; the area is also served by a railroad spur.

Use: A campus-like environment for process R&D, industrial R&D and other manufacturing and production (see also Table 8.1); long-term reuse of the plant site would be possible if a short-term plan with a specific timetable for visual clean-up of the entire site and for the enclosure of all new facilities and operations (according to design guidelines set forth in Chapter 7) is developed and approved.

Subarea 9: Mixed R&D and Office

Location: North of John Muir Parkway extension, adjacent to North Shore Business Park.

Rationale: To provide for land use which is more compatible with adjacent uses in North Shore Business park.

Use: A campus-like environment for corporate headquarters, research and development facilities, office and warehouse use in high quality single or multi-occupant buildings.

Subareas 10 and 11: Light Industrial

Location: Central portion of the SPA, adjacent to the sewage treatment plant.

Rationale: These portions of the SPA do not enjoy the advantages of other areas--bay views or proximity to the freeway--and are, therefore, more suitable for low occupancy uses.

Use: As in Subarea 7, above.

Subarea 12: Regional Commercial

Location: At the extreme eastern portion of the site with frontage along San Pablo Avenue.

Rationale: To take advantage of the high visibility location and direct freeway access.

Use: Regional retail shops, restaurants, services, office space and a 300-room hotel, at final buildout. A transit transfer station would be developed within or adjacent to the complex to enhance WestCAT's fixed route service and access to the commercial uses. This station may be accessible from San Pablo Avenue but would not be immediately adjacent to it. As a minimum, it would require a bus shelter and lane on a side street which could accommodate four buses.

Subarea 13: Refugio Creek Corridor and Wetlands Mitigation Area

Location: As in previously proposed Refugio Creek relocation corridor (Gelsar Tentative Map #6282) along southern boundary of site, then crossing through the Hercules Chemical Plant site to its present outfall into San Pablo Bay. A multi-purpose open space corridor to accommodate stormwater drainage, pedestrian and bicycle pathways, wetlands mitigation and landscape buffer zones.

Rationale: The benefits to be gained from combined Refugio Creek corridor and wetlands mitigation area are: (1) the amount of wetland to be created will be centralized by directing restoration efforts to a single area; this would have a direct biological benefit since smaller, isolated wetlands would have less habitat value; (2) the biological value of the mitigation site will equal or exceed that of the lost wetlands because the restored wetland can be developed into a perennial freshwater marsh by including flow from the relocated Refugio Creek; (3) the overall wildlife habitat diversity of the mitigation area could be increased by including contiguous upland buffer areas within the corridor; and (4) the marsh/creek restoration can add an appealing landscape element which can be developed as a linear park site, land use buffer and natural resource interpretive area, compatible with the habitat value and use of the area. The alternative of preserving individual seasonal wetland bodies in places would make them difficult to manage, and, if they were to be surrounded and isolated by industrial and commercial developments, their habitat value would be greatly diminished.

Use: Stormwater drainage and detention, flood control, pedestrian trails, wildlife habitat, wetlands mitigation and as a buffer between residential areas, the designated Junior-Senior High School site and light industrial uses.

Subarea 14: Mixed R&D and Office

Location: Northeast portion of HPI property, south of the railroad and immediately adjacent to the North Shore Business Park.

Rationale: To provide a more appropriate land use transition between the Relocated Plant Area, Subarea 8, and the North Shore Business Park.

Use:—As in Subarea 9, above.

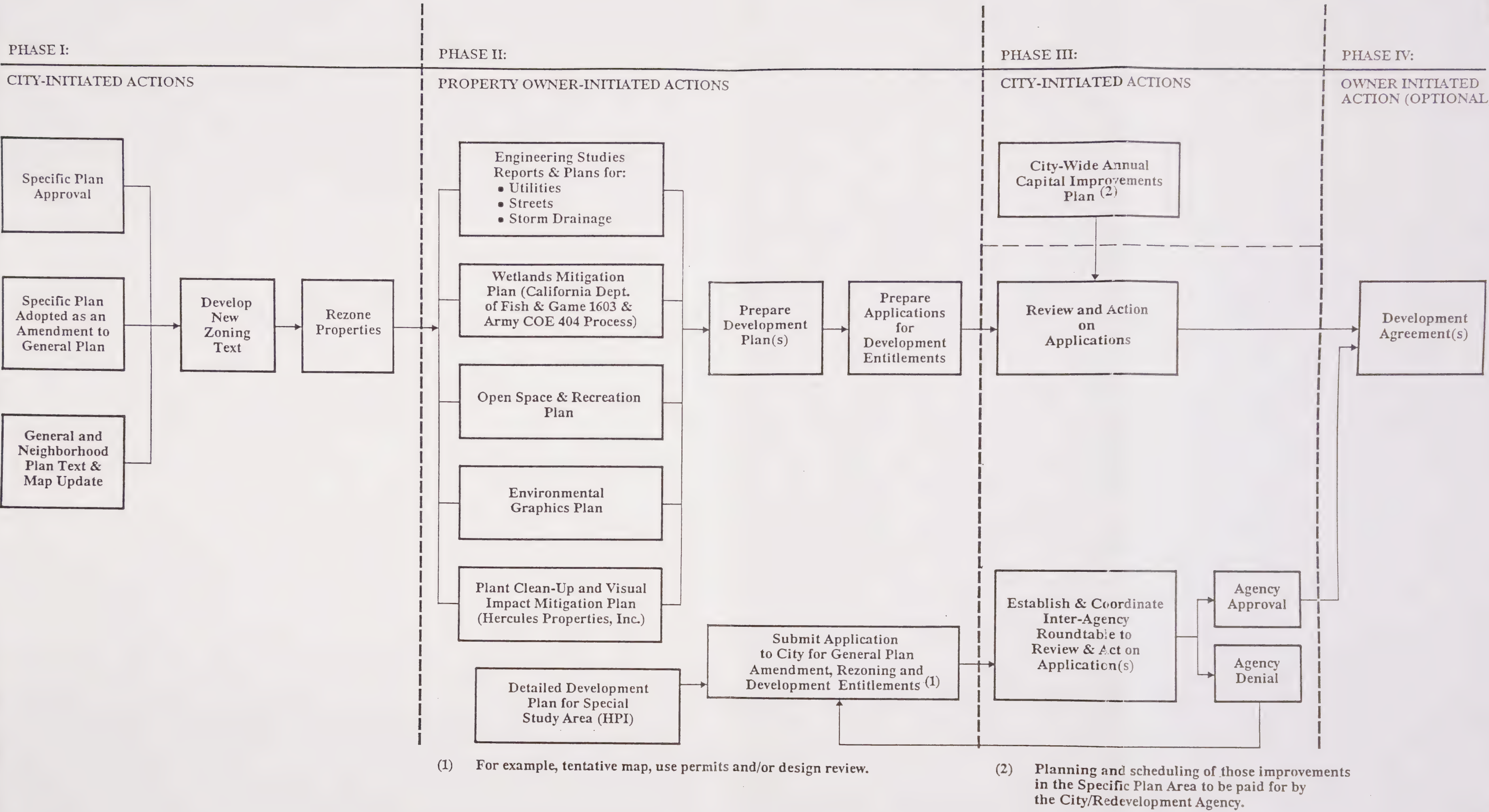
5.3 PROPOSED CIRCULATION PLAN

5.3.1 Vehicular Circulation

To fully realize its development potential, the Specific Plan Area requires an internal circulation network that would provide for adequate access and efficient and safe movement of traffic throughout the entire site. Off-site improvements, particularly at the two access points on San Pablo Avenue, and major access roads to and from the two regional highways, are also necessary to accommodate traffic that will be generated from the development.

In analyzing off-site improvement needs, consideration has been given to the cumulative impacts of other potential developments in the City. Under separate contract, a city-wide analysis of traffic conditions was undertaken concurrently with this Specific Plan by the same consultant. The improvements therefore represent what would be required under an assumed full “build-out” condition. Land use assumptions under the “build-out” condition, assumed trip generation rates, projected peak hour volumes, and the results of capacity analyses are included in Appendix B.

The recommended internal circulation network and the necessary improvements at key intersections are illustrated in a Circulation Plan in Figure 5.2. Key elements and plan provisions which are not readily apparent in Figure 5.2 are described below:



ordinance; or (3) new zoning text will be developed by the City staff after the Hercules Properties, Inc./Gelsar Specific Plan is adopted. Table 8.1 illustrates these proposed zoning changes in a matrix format.

8.3 RECOMMENDED POLICIES

The following policy statements are recommended to ensure the implementation of the full intent of the Hercules Properties, Inc./Gelsar Specific Plan. All development plans and proposals should respond to these statements.

8.3.1 Wetlands

Any impacted Section 404 jurisdictional wetlands will be replaced in like kind and amount in the proposed mitigation corridor.

8.3.2 Geotechnical Hazards

Detailed geotechnical studies will be required as part of any subdivision or development applications for the SPA to minimize hazards from liquefaction, unstable soil or bedrock and to ensure appropriate foundation design.

8.3.3 Pedestrian Access over Railroad Right-of-Way

Pedestrian circulation systems will be completely separated from the railroad right-of-way to maximize pedestrian safety; detailed plans for achieving this separation will be required as part of any subdivision or development applications for Subareas 1, 5, 8 and 14.

8.3.4 Water Supply

Detailed plans for water supply and distribution systems necessary to adequately serve proposed development within the SPA will be required as part of any development application.

8.3.5 Air Quality

Detailed analysis of (1) potential airborne toxic chemicals and (2) potential odor problems with residential development near the sewage treatment plant will be required when project development plans are submitted.

8.3.6 Sewage Treatment

The City of Hercules will expand the sewage treatment plant capacity to accommodate proposed development within the SPA. This expansion will be designed when the scale and type of development are more well defined.

8.4 FINANCING

This section of the report summarizes several financing techniques available to the City of Hercules for the site improvements associated with the development of the Specific Plan Area. The purpose of this section is to provide a description of the financing options, available for the implementation of the Hercules Properties, Inc./Specific Plan.

Table 8.1
HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
ZONING IMPLEMENTATION MATRIX

<u>Subarea</u>	<u>Possible Land Uses</u>	<u>Allowed by Current Industrial Zoning?</u>	<u>Allowed by Proposed Zoning Amendments?(1)</u>	<u>New Zoning Text Required?</u>
1. Historic Hercules	<ul style="list-style-type: none"> • Professional Office • Restaurants • Service Retail • Cultural Facilities • Residential • Parking • Open Space 	No No No No No No No	No No No No No No No	Yes Yes Yes Yes Yes Yes Yes
2. Waterfront Park	<ul style="list-style-type: none"> • Open Space • Pedestrian Trail • Recreation Activity 	Yes No No	No No No	Yes Yes Yes
3. Waterfront Commercial	<ul style="list-style-type: none"> • Restaurants • Fishing Pier • Retail Shops • Community Conference Center • Recreation, Cultural Facility • Pedestrian Trails • Parks, Open Space 	No No No No No No No	No No No No No No No	Yes Yes Yes Yes Yes Yes Yes
* Note: Permitted commercial categories under "M" Zone; however, new ordinance needed to provide better definition.				
4. Special Study Area	None Proposed	No	No	Yes

(1) Source: Administrative Draft (August 3, 1987):
 Industrial Zoning Regulations for the City of Hercules, Henn, Etzel and Mellon.

<u>Subarea</u>	<u>Possible Land Uses</u>	<u>Allowed by Current Industrial Zoning?</u>	<u>Allowed by Proposed Zoning Amendments?(1)</u>	<u>New Zoning Text Required?</u>
5. Mixed R&D and Office	<ul style="list-style-type: none"> • Corporate Office • Industrial Product Sales • Industrial Services • Administrative Office • Parking • Structured Parking 	Yes No Yes Yes Yes No	Yes Yes Yes Yes Yes* Yes*	No No No No No No
6. Medium Density Residential	<ul style="list-style-type: none"> • Single Family Units • Duplex Units • Parking 	No No No	No No No	No* No* No*
7. Light Industrial	<ul style="list-style-type: none"> • Light Manufacturing and Production • Assembly Plants • Administrative Office • Warehouse and Distribution • Industrial Product Sales • Industrial Services • Professional Office • Retail Product Sales/Service • Parking 	Yes Yes Yes Yes No Yes Yes Yes* Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No

* Note: Assumed use under infrastructure category.

* Note: Allowed commercial category under "M" Zone.

(1) Source: Administrative Draft (August 3, 1987):
Industrial Zoning Regulations for the City of Hercules, Henn, Etzel and Mellon.

<u>Subarea</u>	<u>Possible Land Uses</u>	<u>Allowed by Current Industrial Zoning?</u>	<u>Allowed by Proposed Zoning Amendments?(1)</u>	<u>New Zoning Text Required?</u>
8. Relocated Plant Area	<ul style="list-style-type: none"> • Process R&D • Industrial Research & Development • Industrial Product Sales • Industrial Services • Administrative Office • Parking • Structured Parking • Manufacturing and Production 	Yes No No Yes Yes Yes No Yes	Yes Yes Yes Yes Yes Yes* Yes* Yes	No No No No No No No No
* Note: Assumed use under infrastructure category.				
9. Mixed R&D and Office	<ul style="list-style-type: none"> • Light Manufacturing and Production • Assembly Plants • Administrative Office • Warehouse and Distribution • Industrial Product Sales • Industrial Services • Professional Office • Retail Product Sales/Service • Parking 	Yes Yes Yes Yes No Yes Yes Yes* Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No

* Note: Allowed commercial category under "M" Zone.

(1) Source: Administrative Draft (August 3, 1987):
Industrial Zoning Regulations for the City of Hercules, Henn, Etzel and Mellon.

<u>Subarea</u>	<u>Possible Land Uses</u>	<u>Allowed by Current Industrial Zoning?</u>	<u>Allowed by Proposed Zoning Amendments?(1)</u>	<u>New Zoning Text Required?</u>
10. Light Industrial	<ul style="list-style-type: none"> • Light Manufacturing and Production • Assembly Plants • Administrative Office • Warehouse and Distribution • Industrial Product Sales • Industrial Services • Professional Office • Retail Product Sales/Service • Parking 	Yes Yes Yes Yes No Yes Yes Yes* Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No
* Note: Allowed commercial category under "M" Zone.				
11. Light Industrial	<ul style="list-style-type: none"> • Light Manufacturing and Production • Assembly Plants • Administrative Office • Warehouse and Distribution • Industrial Product Sales • Industrial Services • Professional Office • Retail Product Sales/Service • Parking 	Yes Yes Yes Yes No Yes Yes Yes* Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No
* Note: Allowed commercial category under "M" Zone.				

(1) Source: Administrative Draft (August 3, 1987):
Industrial Zoning Regulations for the City of Hercules, Henn, Etzel and Mellon.

<u>Subarea</u>	<u>Possible Land Uses</u>	<u>Allowed by Current Industrial Zoning?</u>	<u>Allowed by Proposed Zoning Amendments?(1)</u>	<u>New Zoning Text Required?</u>
12. Regional Commercial	<ul style="list-style-type: none"> • Convenience Retail • Restaurants • Service Retail • Retail Product Sales/Service • Professional Office • Hotel • Parking • Structured Parking 	Yes Yes Yes Yes Yes Yes Yes Yes	NA NA NA NA NA NA NA NA	No No No No No No No No
13. Creek Corridor and Wetlands Mitigation Area	<ul style="list-style-type: none"> • Multi-purpose Open Space 	Yes	No	Yes*
* Note: New zoning to provide better definition of open space system.				
14. Mixed R&D and Office	<ul style="list-style-type: none"> • Light Manufacturing and Production • Assembly Plants • Administrative Office • Warehouse and Distribution • Industrial Product Sales • Industrial Services • Professional Office • Retail Product Sales/Service • Parking 	Yes Yes Yes Yes No Yes Yes Yes* Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No
* Note: Allowed commercial category under "M" Zone.				

(1) Source: Administrative Draft (August 3, 1987):
Industrial Zoning Regulations for the City of Hercules, Henn, Etzel and Mellon.

Development of the Specific Plan Area may require substantial expenditures for off-site capital improvements. Such improvements would include transportation systems (improvements to the local streets and state highway systems), public infrastructure (sewer, storm drainage, gas, electric, and water systems), and other public facilities. Although such off-site capital improvements are traditionally a developer's responsibility, they may also be funded, to one degree or another, by assessment districts or other programs discussed below.

8.4.1 Tax Allocation Bonds

Redevelopment has been used successfully by many jurisdictions as a means of financing and implementing large-scale development projects. Not only does redevelopment allow strong public controls over new development and rehabilitation, but it also facilitates the financing of public improvements by permitting the use of tax allocation bond financing.

Tax allocation bonds have proven to be a particularly effective method of financing public facilities. The repayment of tax allocation bonds comes from increases in ad valorem tax receipts (above those taxes received in an established "base year") generated within the boundaries of a redevelopment project area. The issuance of tax allocation bonds does not require a favorable vote of the electorate.

8.4.2 General Obligation Bonds

The reinstatement of general obligation bonds as a viable means of financing presents the City with a low-cost option for financing all or part of project infrastructure costs.

The passage, in 1978, of Proposition 13 with its 1 percent limitation on the tax rate, effectively prevented local jurisdictions from issuing general obligation bonds. However, in June 1986, Proposition 13 was amended to allow local governments to levy taxes above the 1 percent limit for voter-approved bond issues. A general obligation bond issue must be approved by a two-thirds vote of both the city council and the electorate. The relatively low cost of general obligation bond financing and the magnitude of the offsetting tax revenues generated by the project could have a reasonable chance of success. Each issue of general obligation bonds is backed by the full faith and credit of the issuing governmental entity and is secured by property taxes. Of the available methods, the general obligation bond receives the highest available rating and, because of this, commands the lowest possible interest rate. Thus, the general obligation bond is the least expensive method of borrowing money for public facilities.

8.4.3 Special Assessment Districts

Special assessment districts are often used to fund public improvements. Two distinct types of special assessment districts are used in California:

1911 Act Assessment Districts. Under this approach, bonds are issued to cover each individual property's share of the total costs. The bonds bear the legal description of the property which secures them and repayment of the bond is a lien against that specific property. Because 1911 Act bonds are based upon equal payments of principal throughout the term of the bond, interest charges and total payments are substantially higher at the front end.

1915 Act Assessment Districts. The 1915 Act Assessment District procedures are less cumbersome than the 1911 Act. There is a single district boundary and all property which

secures repayment of the bonds is pooled. Equal payments throughout the term of the bond are possible.

Under both of these approaches, bonds are usually issued by the local sponsoring jurisdiction and property owners within the district area assessed to repay the bonds. The success of assessment districts depends to a large degree upon measurable benefits to the property owners within the boundaries of the district.

8.4.4 The Mello-Roos Community Facilities Act of 1982

The Mello-Roos Act permits the establishment of special districts to fund a wide range of public improvements and services. Typical improvements include streets, highway interchanges, sewage systems, storm drains, police stations, libraries, and parks, in fact almost any type of facility that the sponsoring jurisdiction is legally authorized to construct. Services include the maintenance and operation of the facilities mentioned above.

The act permits the establishment and collection of a special tax. The special tax may be used to amortize revenue bonds issued to fund facilities. Facilities and services also may be funded directly from the special tax.

The formation of a Mello-Roos district requires a favorable vote of either registered voters (if there are 12 or more registered voters within the proposed district) or property owners (if there are fewer than 12 registered voters in the proposed district). If the vote is by property owners, then the basis of the vote is one vote per acre of land.

8.4.5 Development Impact Fees

Development impact fees are fees collected by cities and other governmental jurisdictions to offset the cost of public facilities and infrastructure generated by new private development. Development impact fees should not be confused with fees collected as a mean of recapturing governmental administrative costs (building permit processing fees, for example) or governmental costs incurred in providing services (sewer connections, for example). For some cities, development impact fees are a substantial source of revenue. In San Jose, for example, total revenues from development impact fees are expected to exceed \$34.5 million in fiscal year 1986-1987.

The purposes for which development fees are collected include: street improvements, freeway interchanges, storm drainage systems, sewer facilities, parking lots and structures, utility undergrounding, street trees, park and recreation facilities, schools, police, fire and communications facilities, libraries, low-to-moderate income housing, and child care facilities.

Development impact fees are normally one-time collected fees. Fees are assessed in a number of different ways, including: a percentage of building permit valuation, dollars per square foot, dollars per gallon of projected sewage flow (sewage systems), dollars per dwelling unit, and dollars per acre.

8.5 PHASING

The following phasing plan is recommended for the Specific Plan Area. It should be noted that future market trends, particularly in the 10 to 15 year range, are difficult to predict. All proposed development should be based on current market analyses.

- There exist immediate opportunities in the current (1987) market for residential and flexibly designed commercial/R&D/industrial developments, as well as selective reuse of the existing industrial plants on the site.
- Within 5 years, assuming (a) continued population growth as projected and (b) the completion of the residential projects as anticipated, there may be sufficient new demand generated for an initial increment of additional retail space--which is not directly competitive with Hilltop, as well as initial adaptive reuse and new development in Historic Hercules.
- Within 5 years the market will continue to absorb moderate amounts of office/R&D/industrial space. Ideally, buildings should be designed as general purpose to attract a broad section of potential users.
- Within 10 years, assuming (a) continued population growth, and (b) establishment of a strong retail and industrial/R&D/office presence in Hercules, there will be opportunities for additional retail space (i.e., specialty shops, convenience goods), new office/R&D/industrial space, and new residential units.
- Within 15 years, assuming (a) continued population growth, (b) continued success of the retail space in the study area, (c) continued growth of the office, R&D and light industrial market and (d) build-out of the site to include additional residential and a new hotel. Additional office/R&D/industrial space will also continue to be absorbed.

APPENDIX A

Table A.1
HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
SPA PARCEL NUMBERS AND EXISTING BUSINESSES

Parcel Numbers

Hercules Properties, Inc.

404-020-034

404-020-037

404-020-038

404-010-005

404-010-008

Gelsar Properties, Inc.

404-020-030

404-020-048

Existing Business (September, 1986)

Alfred Conhagen Inc. of Ca.

Blair & Sons

Hercules Energy Research Center

Martinez Industrial Services

T. & M. Heating & Air Conditioning

Thagard Research Corp.

Music Research Institute

Thermolytica

Cal Custom Cabinets

Pactron

Window Supply

Metaltronics Research

International Research Assoc.

APPENDIX B

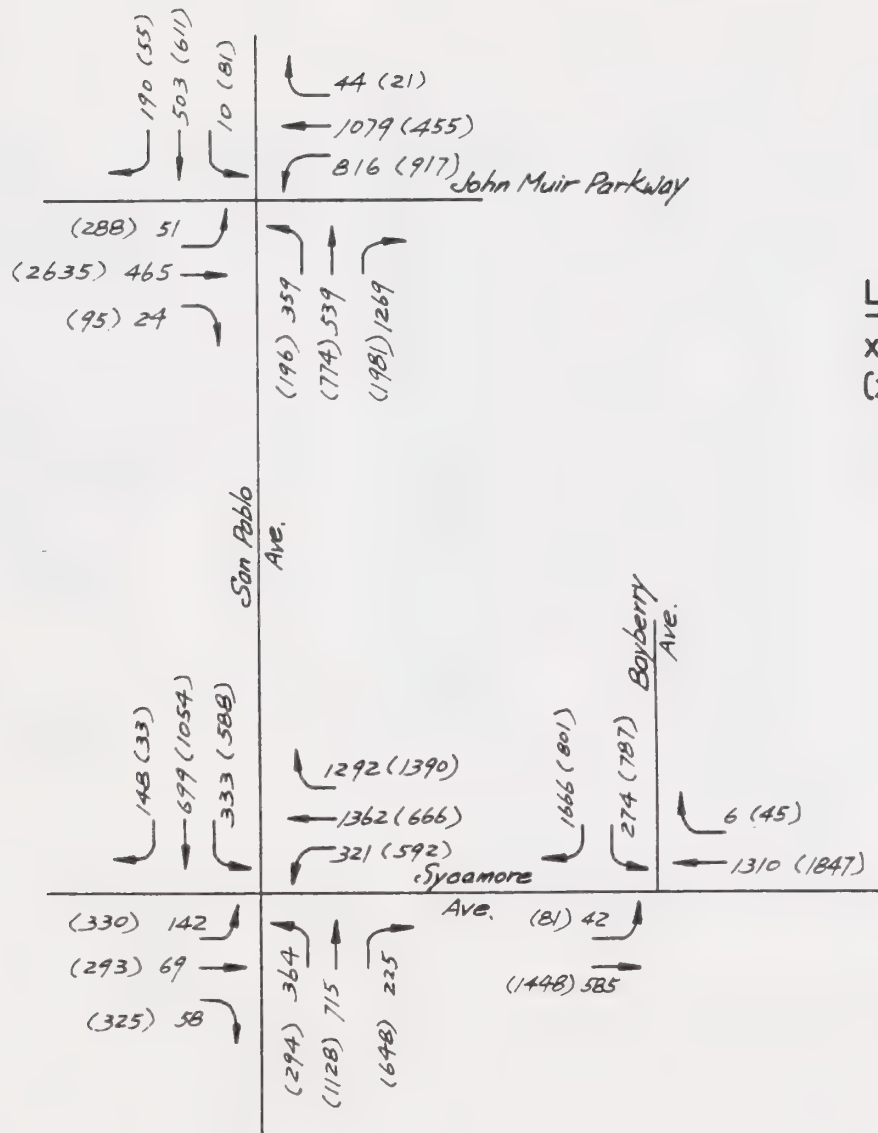
Traffic and Circulation Exhibits

Table B.1

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
ASSUMED "BUILD-OUT" LAND USE**

Land Use Group	Unit of Measure	Existing (1986)	New Developments		Total	Grand Total at Build-Out
			Specific Plan Area	Other Areas		
Residential	Unit	3336	88	4898	4986	8322
Hotel	Room	0	300	400	700	700
Retail/Comm.	1000 s.f.	82	150	688	838	920
Office	1000 s.f.	24	563	589	1152	1176
Industrial Park	1000 s.f.	0	350	2050	2400	2400
Lt. Industrial	1000 s.f.	30	730	1274	2004	2034
Heavy Industrial -	Acre	244	0	40	40	284

Note: These numbers were those originally run with the City-wide traffic model; they were changed based on the comments obtained during draft review; however, this resulted in no net increase in the total trip generation for the APA; revised square footage numbers can be found in Table 5.1.



Projected "Build Out" Peak Hour Volumes

Source: JHK Associates

Figure B.1

APPENDIX B

Traffic and Circulation Exhibits

Table B.2

**HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
TRIP GENERATION RATES**

Land Use Type	Unit of Measure	AM Trip Rate	PM Trip Rate
Single family residential	Unit	0.52	0.77
Condo/Townhouse/Apt	Unit	0.45	0.60
General office (large user)	1000 s.f.	2.00	2.03
General office (small user)	1000 s.f.	2.50	2.82
Civic center	1000 s.f.	2.25	2.85
Industrial park	1000 s.f.	0.93	0.99
Light industrial	1000 s.f.	1.11	1.18
Heavy industrial	Acre	0.40	0.70
Neighborhood shopping ctr.	1000 s.f.	2.93	14.42
Community shopping ctr.	1000 s.f.	1.70	6.00
Specialty retail	1000 s.f.	0.40	4.00
Fastfood restaurant	1000 s.f.	89.90	31.60
High quality restaurant	1000 s.f.	1.02	6.14
Hotel	Room	0.85	0.73
Bank	1000 s.f.	5.40	13.90
Medical office	1000 s.f.	0.85	3.94
High School	Student	0.27	0.20
Jr./Elementary School	Student	0.15	0.03

APPENDIX B

Traffic and Circulation Exhibits

Table B.3
HERCULES PROPERTIES INC./GELSAR SPECIFIC PLAN
CAPACITY ANALYSIS SUMMARY

Intersection	Without Improvements				With Improvements			
	AM Peak Hour V/C	L.O.S.	PM Peak Hour V/C	L.O.S.	AM Peak Hour V/C	L.O.S.	PM Peak Hour V/C	L.O.S.
San Pablo/John Muir	1.28	F	2.49	F	0.87	D	0.89	D
San Pablo/Sycamore	1.53	F	1.41	F	0.88	D	0.90	D
Bayberry/Sycamore	1.76	F	1.73	F	0.89	D	0.78	C

Table B.4
HERCULES PROPERTIES INC./GELSAR SPECIFIC PLAN
SUMMARY OF LEVELS OF SERVICE FOR INTERSECTIONS

<u>Level of Service</u>	<u>Type of Flow</u>	<u>Volume/Capacity Ratio</u>	<u>Delay</u>	<u>Maneuverability</u>
A	Free flow	0-0.60	Most vehicles arrive during the green phase and do not stop at all. Average delay 0-5.0 seconds.	Turning movements are easily made, and nearly all drivers find freedom of operation.
B	Stable flow	0.61-0.70	Progression is good, although more vehicles stop than for LOS "A". Average delay 5.1-15.0 seconds.	Many drivers begin to feel somewhat restricted within groups of vehicles.
C	Stable flow	0.71-0.80	A significant number of vehicles stop. Individual cycle failures may begin to appear at this level. Average delay 15.1-25.0 seconds.	Backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.
D	Approaching Unstable flow	0.81-0.90	Longer delays result in noticeable congestion. Average delay 25.1-40.0 seconds.	Maneuverability is severely limited during short periods due to temporary backups.
E	Unstable flow	0.91-1.00	Considered the limit of acceptable delay. Individual cycle failures are frequent occurrences. Average delay 40.0-60.0 seconds.	There are typically long queues of vehicles waiting upstream of the intersection.
F	Forced flow	Over 1.00	Excessive delay--unacceptable to most drivers. Average delay greater than 60 seconds.	Jammed conditions. Backups from other locations may restrict or prevent movement of vehicles at the intersection under consideration.

Sources: Highway Capacity Manual, 1965, and Interim Materials on Highway Capacity, 1980, and Highway Capacity Manual, 1985.

APPENDIX C

HERCULES PROPERTIES INC./GELSAR SPECIFIC PLAN HERCULES CHEMICAL PLANT ASSESSMENT

Background

The plant site was first used in chemical manufacture when dynamite was produced starting in 1881. E.I. DuPont de Nemours Powder Company took title to the "Hercules Plant" in 1906. In 1912 DuPont was forced to dissolve some of its dynamite production business due to antitrust rulings. The Hercules Powder Company was thus formed, taking control of the Hercules plant. Explosives were produced continuously over the year with the plant being expanded several times.

In 1940 an ammonia plant was constructed for fertilizer uses. A new ammonia facility was subsequently built in 1965. A methanol plant was built in 1960. Other production facilities included urea, formaldehyde and ammonium nitrate.

The production of explosives ended in 1964. Hercules Chemical Company, formerly Hercules Powder Company, later changed its name to Hercules, Inc. The site was sold to Valley Nitrogen Producers in 1976 for fertilizer production. The fertilizer plant was closed in late 1977 and has remained closed since then. Hercules Properties, Inc. subsequently purchased a portion of the original site, including the former chemical plant.

In the course of the work, professional personnel from SFA Pacific visited and toured the plant site and equipment on two occasions and had extensive discussions with members of both Hercules Properties, Inc. and Hercules Energy Research Center (HERC). In addition, SFA Pacific reviewed a variety of reports and other information made available by Hercules Properties, Inc. and HERC. SFA Pacific signed appropriate secrecy agreements with both organizations in order to make the review as complete as possible. The conclusions reached and views expressed are those of SFA Pacific.

Plant Equipment

The plant units now existing in whole or in part on the plant site consist of the following:

- **Methanol Plant.** This unit was built in 1960 by Vulcan-Cincinnati. It consists of an atmospheric pressure steam-methane reformer and compression facilities for supplying synthesis gas (hydrogen and carbon monoxide) at 6,000 pounds per square inch (psi) pressure to a synthesis reactor. The plant was rated for a daily capacity of 80 tons of chemical grade methanol.
- **Ammonia Plant.** This unit was built by Bechtel in 1965 and has a rated capacity of 200 tons per day. The process used high pressure steam methane reforming (450 psi) to provide hydrogen to a high pressure synthesis gas loop (4,600 psi).
- **Ammonia Storage.** A 4 million gallon tank exists on the point. This insulated carbon steel tank was designed to store about 4 million gallons of anhydrous liquid ammonia at about -28°F and atmospheric pressure. The system was originally equipped with compressors.

- Nitric Acid. Total nitric acid plant capacity appears to have been 400-450 tons per day at 100% nitric acid. The plant was originally built in 1931 and was subsequently revamped and expanded in later years. It now consists of three DuPont converters and associated equipment. On the average, acid of about 50 percent strength was produced; under the best operating conditions, acid strength of about 57 percent was produced.
- Nitrogen Tetroxide. This plant unit was built in 1962 by Hercules, Inc. and had a production capacity of 60 tons per day. It was one of the few plants in the U.S. producing this product. The plant included a nitric acid converter, a nitrogen tetroxide reactor, a nitric acid still, a nitrogen tetroxide still, refrigeration compressors, a cooling tower and storage, and ammonia storage "bullets." The product was shipped in one-ton cylinders, by truck and by rail car.
- Urea. This plant originally built in 1959 by Vulcan-Cincinnati to produce 60 tons of urea (100 percent basis) per day and was expanded to 120 tons per day in 1968. Carbon dioxide was supplied from the ammonia plant for reaction with ammonia. The urea reactors were operated at 3100 psi in a once-through design. Off-gases were sent to the nitric acid and ammonia plants. Average strength of the liquid urea was 85 percent.
- Prilled Ammonium Nitrate. In 1966 a prill plant was constructed with a capacity of 120 tons per day. This plant was expanded to 200 tons per day in 1973. The plant consists of an evaporator, prill tower, a drying train, bulk storage and a bulk warehouse, and a bagging machine.
- Powerhouse. The function of the powerhouse was to supply air to the nitric acid plant. It contained three boilers for producing 160 psi (gauge) steam and associated equipment and air compressors together with associated equipment. The boilers were fired by fuel oil or natural gas.

The current condition of the equipment varies significantly throughout the plant. The methanol plant is in quite good condition partly because major overhauling of the unit was conducted in 1980, including a new charge of catalyst, upgrading of the instrumentation system, and overhaul of the compressors. The unit was overhauled by a group of investors from Denver in anticipation of a start-up which did not materialize. Refurbishing of the unit was not completed. The atmospheric reformer is of a low-pressure energy inefficient design and would not likely be used for any future use. The size of the unit is sub-economic at only 80 tons per day. The plant would not be economically competitive for methanol production in today's market.

The ammonia plant is in poorer condition than the methanol unit. However, the high pressure steam methane reformer is of modern design and appears to be in reasonably good condition. Other parts of the system are fairly specific for ammonia production and are not considered to be of much use. At 200 tons per day capacity the unit is sub-economic in scale to produce ammonia in today's market.

The nitric acid plant is in very poor condition, however, some of the vessels in the adjoining nitrogen tetroxide unit appear to be in good shape. Three vessels could be moved to another part of the site for nitrogen tetroxide production. The ammonia storage bullets appear to be in good shape. The urea plant is in poor condition except perhaps for one reactor and one

compressor. The ammonium nitrate prilling system is in reasonable good shape, however little of the ammonium nitrate production facilities remain.

The 4 million gallon anhydrous ammonia storage tank is probably in reasonable condition. However, it would require significant modification in order to use it to store other products such as fuels or chemicals. In particular a dike would need to be installed for safety in case of a spill. Also, the compressors used in conjunction with it are no longer on the site. The powerhouse is antiquated in design and is in poor condition.

APPENDIX D

CURRENT AIR QUALITY PERMITS

The following is a list of active permits as obtained from the Bay Area Air Quality Management District.

<u>Number</u>	<u>Name/Description</u>
1	Ammonia Reactor
2	Ammonia Reformer Furnace
3	Start-up Heater
4	MEA Regenerator
6	Ammonia Reformer Process Section
8	Methanol Reactor
9	Methanol Reformer Furnace
10	Reformer Process Section
11	Methanol Purification System
12	Crude Methanol Tank
13	15,000 Gal. Methanol Product Work Tank M-1
14	15,000 Gal. Methanol Product Work Tank M-2
15	125,000 Gal. Methanol Storage Tank M-3
16	125,000 Gal. Methanol Storage Tank M-4
17	Methanol Product Loadout Arm (2 arms)
18	500,000 Gal. Methanol Storage Tank M-5
19	Fuel Oil Storage Tank #705-B
20	Urea Reactor
21	Tank U-1 Urea Make-up
22	Tank D-16 TRI-N-32 Storage
23	Falling Film Evaporator
24	Tank AN-9 83% NAL
26	160 PSIG Steam Boiler #7 (normally down)
27	160 PSIG Steam Boiler #8 (normally on-line)
28	160 PSIG Steam Boiler #9 (stand-by)
29	Fuel Oil Storage Tank No. 119-O
30	Fuel Oil Storage Tank No. 119-P
31	Fuel Oil Storage Tank No. 119-M
32	Fuel Oil Storage Tank No. 119-N
33	Fuel Oil Storage Tank No. 119-C
34	Fuel Oil Storage Tank No. 119-D
35	Fuel Oil Storage Tank No. 119-E
36	LP Ammonia Storage Sys. #A-12 with Refrig. and Htng. Eqp.
37	Ammonium Nitrates Neutralizer
38	Aqua Ammonia Stripper
39	Ammonia Oxidation Plant
40	50% Urea Storage Tank U-2
41	50% Urea Storage Tank U-3
42	50% Urea Storage Tank U-4
43	Aqua Ammonia Storage Tank B-1
44	Aqua Ammonia Storage Tank B-2

<u>Number</u>	<u>Name/Description</u>
45	2970 Aqua Ammonia Storage B-3
46	25% Aqua Ammonia Storage B-6
47	Aqua Ammonia Loadout @ Scales - 2 arms
48	Nitrogen Tetroxide Storage 1
49	Nitrogen Tetroxide Storage 2
50	Nitrogen Tetroxide Storage 3
51	N204 Canister Loading
52	N204 Plant Purge Vent
53	Nitric Acid Storage Tank NA-1 (50%)
54	Nitric Acid Storage Tank NA-2 (50%)
55	Nitric Acid Storage Tank NA-3 (50%)
56	Nitric Acid Storage Tank NA-4 (50%)
57	Nitric Acid Storage Tank NA-5 (50%)
58	Nitric Acid Storage Tank WN-1
59	Nitric Acid Storage Tank WN-2
60	Nitric Acid Storage Tank N-4 (56%)
61	Nitric Acid Storage Tank WN-5 (98%)
62	Nitric Acid Storage Tank WN-6 (98%)
63	Nitric Acid Storage Tank WN-7 (75%)
64	N204 RR Car Loadout
65	Nitric Acid Storage Tank F-1 (98%)
66	Nitric Acid Storage Tank F-2 (98%)
67	Nitric Acid Storage Tank C-4 (50-67%)
68	Conc. Acid Mix Storage Tank C-1
69	Mixed Acid Storage Tank C-3
70	— Mixed Acid RR Car Loadout (2 arms)
71	Nitric Acid Truck Loadout
72	Ammonium Nitrate Tower
73	Ammonium Nitrate Prill Evaporator
74	Rotary Predryer
75	Rotary Dryer
76	Rotary Cooler
77	Talc Bin
79	Talc/Prill Blender
80	Ammonium Nitrate Storage Tank AN-7
81	Ammonium Nitrate Storage Tank AN-8
82	Ammonium Nitrate Storage Tank AN-46
83	Ammonium Nitrate Storage Tank AN-47
84	Tank T-48 TRI-N-32 Storage
85	Tank T-49 TRI-N-32 Storage
86	Ammonium Nitrate Storage Tank AN-51
87	Ammonium Nitrate Storage Reservoir
88	TRI-N-32 Storage Reservoir

APPENDIX E
HERCULES PROPERTIES, INC./GELSAR SPECIFIC PLAN
ENVIRONMENTAL REVIEW

Introduction

A multi-level environmental review process has been established for the development of the Specific Plan Area (SPA). This will permit the review to focus on those environmental issues which are relevant to the level of approval being considered. The Hercules Properties, Inc./Gelsar Specific Plan will be, upon approval, an amendment to the Hercules General Plan. This initial review to assess impacts at the General Plan level will, therefore, be followed by a series of separate and more detailed environmental assessments when more specific development plans are proposed.

The Initial Study incorporated in this document represents the first level in the environmental review process. There are potential environmental impacts which can be understood and addressed at this time; other impacts either cannot be anticipated or will require information that was not available to the current planning effort to be fully understood.

As the Initial Study indicates, impacts which can be foreseen at this time can be fully mitigated either by adopted City ordinances or by the policy recommendations set forth in this Specific Plan document. Mitigation measures recommended herein are integral to the proposed land use plan. Applications for specific development entitlements will be subject to further environmental review and could require further mitigation.

ENVIRONMENTAL CHECKLIST FORM

I. Background

1. Name of Proponent: City of Hercules
2. Address and Phone Number of Proponent:
555 Railroad Avenue
Hercules, California
(415) 724-9830
3. Date of Checklist Submission: April 1987
4. Agency Requiring Checklist: State Clearinghouse
5. Name of Proposal, if applicable: Hercules Properties, Inc./Gelsar Specific Plan

II. Environmental Impacts

(Explanations of all "yes" and "maybe" answers can be found on attached sheets.)

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
1. <u>Earth</u> . Will the proposal result in:			
— a. Unstable earth conditions or in changes in geologic substructures?	—	—	<u>X</u>
b. Disruptions, displacements, compaction or over-covering of the soil?	<u>X</u>	—	—
c. Change in topography or ground surface relief features?	<u>X</u>	—	—
d. The destruction, covering or modification of any unique geologic or physical features?	—	—	<u>X</u>
e. Any increase in wind or water erosion of soils, either on or off the site?	<u>X</u>	—	—
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	—	—	<u>X</u>

g.	Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	_____	_____	<u> X </u>
2.	<u>Air.</u> Will the proposal result in:			
a.	Substantial air emissions or deterioration of ambient air quality?	_____	_____	<u> X </u>
b.	The creation of objectionable odors?	_____	_____	<u> X </u>
c.	Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?	_____	_____	<u> X </u>
3.	<u>Water.</u> Will the proposal result in:			
a.	Changes in currents, or the course or direction of water movements, in either marine or fresh waters?	<u> X </u>	_____	_____
b.	Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?	<u> X </u>	_____	_____
c.	Alterations to the course or flow of flood waters?	<u> X </u>	_____	_____
d.	Change in the amount of surface water in any water body?	_____	_____	<u> X </u>
e.	Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	_____	<u> X </u>	_____
f.	Alteration of the direction or rate of flow of ground waters?	_____	_____	<u> X </u>
g.	Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	_____	_____	<u> X </u>
h.	Substantial reduction in the amount of water otherwise available for public water supplies?	_____	_____	<u> X </u>

i.	Exposure of people or property to water-related hazards such as flooding or tidal waves?	—	—	<u>X</u>
4.	<u>Plant Life.</u> Will the proposal result in:			
a.	Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, microflora and aquatic plants)?	<u>X</u>	—	—
b.	Reduction of the numbers of any unique, rare or endangered species of plants?	—	—	<u>X</u>
c.	Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	<u>X</u>	—	—
d.	Reduction in acreage of any agricultural crop?	—	—	<u>X</u>
5.	<u>Animal Life.</u> Will the proposal result in:			
a.	Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?	<u>X</u>	—	—
b.	Reduction of the numbers of any unique, rare or endangered species of animals?	—	—	<u>X</u>
c.	Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	—	—	<u>X</u>
d.	Deterioration to existing fish or wildlife habitat?	—	—	<u>X</u>
6.	<u>Noise.</u> Will the proposal result in:			
a.	Increases in existing noise levels?	—	—	<u>X</u>
b.	Exposure of people to severe noise levels?	—	—	<u>X</u>
7.	<u>Light and Glare.</u> Will the proposal produce new light or glare?	—	—	<u>X</u>

- | | | | | |
|-----|---|----------|---|----------|
| 8. | <u>Land Use.</u> Will the proposal result in a substantial alteration of the present or planned land use of an area? | <u>X</u> | — | — |
| 9. | <u>Natural Resources.</u> Will the proposal result in: | | | |
| a. | Increase in the rate of use of any natural resources? | — | — | <u>X</u> |
| b. | Substantial depletion of any non-renewable natural resource? | — | — | <u>X</u> |
| 10. | <u>Risk of Upset.</u> Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions? | — | — | <u>X</u> |
| 11. | <u>Population.</u> Will the proposal alter the location, distribution, density, or growth rate of the human population of an area? | <u>X</u> | — | — |
| 12. | <u>Housing.</u> Will the proposal affect existing housing, or create a demand for additional housing? | <u>X</u> | — | — |
| 13. | <u>Transportation/Circulation.</u> Will the proposal result in: | | | |
| a. | Generation of substantial additional vehicular movement? | <u>X</u> | — | — |
| b. | Effects on existing parking facilities, or demand for new parking? | <u>X</u> | — | — |
| c. | Substantial impact upon existing transportation systems? | <u>X</u> | — | — |
| d. | Alterations to present patterns of circulation or movement of people and/or goods? | <u>X</u> | — | — |
| e. | Alterations to waterborne, rail or air traffic? | — | — | <u>X</u> |
| f. | Increase in traffic hazards to motor vehicles, bicyclists or pedestrians? | — | — | <u>X</u> |

14. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas?
- | | | | | |
|----|--|-----|----------|----------|
| a. | Fire protection? | ___ | <u>X</u> | ___ |
| b. | Police protection? | ___ | <u>X</u> | ___ |
| c. | Schools? | ___ | ___ | <u>X</u> |
| d. | Parks or other recreational facilities? | ___ | ___ | <u>X</u> |
| e. | Maintenance of public facilities, including roads? | ___ | ___ | <u>X</u> |
| f. | Other governmental services? | ___ | ___ | <u>X</u> |
15. Energy. Will the proposal result in:
- | | | | | |
|----|--|-----|-----|----------|
| a. | Use of substantial amounts of fuel or energy? | ___ | ___ | <u>X</u> |
| b. | Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy? | ___ | ___ | <u>X</u> |
16. Utilities. Will the proposal result in a need for new systems, or substantial alterations to the following utilities?
- | | | | | |
|----|---------------------------|----------|----------|----------|
| a. | Power or natural gas? | ___ | ___ | <u>X</u> |
| b. | Communications systems? | ___ | ___ | <u>X</u> |
| c. | Water? | ___ | ___ | <u>X</u> |
| d. | Sewer or septic tanks? | <u>X</u> | ___ | ___ |
| e. | Storm water drainage? | <u>X</u> | ___ | ___ |
| f. | Solid waste and disposal? | ___ | <u>X</u> | ___ |
17. Human Health. Will the proposal result in:
- | | | | | |
|----|---|-----|-----|----------|
| a. | Creation of any health hazard or potential health hazard (excluding mental health)? | ___ | ___ | <u>X</u> |
|----|---|-----|-----|----------|

- | | | | | |
|-----|---|---|---|----------|
| b. | Exposure of people to potential health hazards? | — | — | <u>X</u> |
| 18. | <u>Aesthetics.</u> Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view? | — | — | <u>X</u> |
| 19. | <u>Recreation.</u> Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities? | — | — | <u>X</u> |
| 20. | <u>Archaeological/Historical.</u> Will the proposal result in an alteration of a significant archaeological or historical site, structure, object or building? | — | — | <u>X</u> |
| 21. | <u>Mandatory Findings of Significance.</u> | | | |
| a. | Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | — | — | <u>X</u> |
| b. | Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.) | — | — | <u>X</u> |
| c. | Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.) | — | — | <u>X</u> |

- d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

____ _ X

III. Discussion of Environmental Evaluation

This section explains the “yes” and “maybe” responses to the preceding checklist. It also described mitigation measures incorporated into the Specific Plan document which will insure that environmental impacts be reduced to insignificant levels.

Earth

The Specific Plan Area (SPA) contains soils and geologic units which could be considered to possess slight to moderate constraints to development. These constraints consist of clayey soils with high expansive potential, highly compressible bay muds which afford poor bearing strengths, uncompacted fill materials with undesirable engineering properties, boggy areas with high groundwater tables, and potential unstable and erosive slope deposits and landslide debris. Development will require fill removal, importation and engineered placement of controlled fill, provision of subdrain structures, and grading and terracing of slopes on most of the SPA; specific grading plans will be provided as individual projects are proposed; they will receive additional environmental review at that time. Potential seismic hazards for the SPA consists of ground shaking, liquefaction, lurching and landsliding. Fault rupture is considered very remote. Strong ground motion may occur within the life of most structures being considered for the SPA. This hazard cannot be eliminated, but the current building code provides standards for construction which would minimize structural damage due to shaking. With proper geotechnical design investigations, grading and fill control, and foundation engineering, as required in the Hercules General Plan Seismic/Safety Element and Grading Ordinance, Chapter 70 of the Uniform Building Code, and the Design Guidelines recommended herein, the types of land alteration proposed for the SPA are not anticipated to cause a significant impact on earth resources.

Water

Flood hazards, ponded conditions and a high groundwater table necessitate that flood control and drainage provisions be implemented in the SPA. These provisions include importing fill to raise ground surface elevations above 100-year flood plain elevation, installation of subdrains and realignment and widening of Refugio Creek. Flood control is technically feasible within Refugio Valley, however, the final channel design requirements and associated costs are currently being discussed with County Flood Control personnel.

Portions of the SPA will be covered with impervious surface material, thus increasing the rapidity of runoff and decreasing infiltration. Exact acreage of the impervious surfaces cannot be quantified until specific development plans are submitted. A storm drainage master plan and development guidelines for the entire SPA have been recommended as part of this Specific Plan. The master plan will incorporate the results of the Creek Relocation Study and provide a comprehensive storm water management system.

Additionally, there is currently a streambed alteration agreement between prior landowners and the State through the State Lands Commission (February, 1974). This agreement allows for another relocation of Refugio Creek in return for riparian planting along the creek and the design and implementation of a tidal pond in the Pond C area. The agreement requires that the California Department of Fish and Game (DFG) have input into the final design of the creekbed to insure its continued use as an anadromous fishery.

The benefits to be gained from the proposed approach (combined Refugio Creek and wetlands mitigation) are: (1) the amount of wetland to be created will be minimized by directing restoration efforts to a single area; (2) the biological value of the mitigation site will exceed that of the lost wetlands because the restored wetland can be developed into a perennial freshwater marsh by including flow from the relocated Refugio Creek; the wetlands can also be centered in one area along the protected riparian and upland habitat; and (3) the marsh/creek restoration can add an appealing landscape element which can be developed as a possible park site and natural resource interpretive area. The overall wildlife habitat diversity of the mitigation site could be increased by including upland buffer areas.

There is an extensive acreage of diked historic baylands, which occur from the bay's shore to a line projected north eastward from the Hercules Sewer Treatment Plant. The Bay Conservation and Development Commission (BCDC) has policies regarding activities in diked historic baylands which must be considered by COE as required by the Coastal Zone Management Act. The BCDC will review all plans for activities in these areas for consistency with their policies.

The existing agreement and review process, as well as the design guidelines recommended herein, will insure that no significant impacts on the hydrologic system of the SPA occur.

Plant Life

With development, as proposed by the Specific Plan, approximately 35 percent of the area will be landscaped or left as open space. The exact plant materials composition will not be known until specific development proposals are presented. These will require future environmental review. Landscaping will result in the introduction of plant materials which are not found on the site naturally. Introducing these plant materials will create new habitat types near the buildings and structures. It is assumed that the open space areas will receive some form of maintenance. This maintenance will probably alter the diversity of plant species as some species are eliminated. No unique, rare or endangered species will be effected.

Wetland development, in particular, will result in the alteration of approximately 10 to 12 acres of freshwater wetlands. A mitigation plan incorporating the acreage of lost wetlands with the relocation of Refugio Creek and the development of associated areas of riparian and upland habitat is recommended in the development guidelines, herein. The implementation of this plan would enhance the wetland areas within the SPA. The extensive agency review process required for permit approval will insure that state and federal mitigation requirements are met, and no significant impacts are anticipated.

Animal Life

Changes in animal species diversity will be directly related to changes in vegetative diversity. The proposed Refugio Creek Wetland Mitigation and Open Space Corridor could significantly enhance the habitat diversity within the SPA. No unique, rare or endangered species were identified on the site, therefore no significant impacts are anticipated.

Land Use

Most of the SPA is currently undeveloped or occupied by equipment which is no longer in operation. The current uses will be replaced by a variety of uses, including commercial office space, warehouse facilities, research and development facilities, recreation and tourism-generating activities, residential units, retail shops and services and a hotel. Parking facilities related to these uses will also replace the existing uses.

The extent and final configuration of these land uses will be determined during the preparation of specific development plans. Existing zoning and proposed zoning changes incorporated in this Specific Plan will be adequate to regulate future land use; therefore no significant impacts on land use are anticipated.

Population

With the development proposed for the SPA, the daytime population of the site will increase by the number of employees associated with the new development. Residential development, at a density of 8 dwelling units per acre, is proposed for an 11.31 acre area near the Historic Town Center. Development of these units could result in a population increase of approximately 200 people. No significant impacts on population are anticipated.

Housing

The proposed development will add approximately 88 units of housing to the existing supply in Hercules. An increase in employment generating uses within the SPA will result in an increased demand for local housing. The exact demand and its potential impact cannot be assessed until specific development plans have been proposed and further environmental review can be undertaken. However, no significant impacts on housing are anticipated at this time.

Transportation/Circulation

The development proposed for the SPA will occur in phases based on the market demand for the various proposed uses. As development occurs, increased vehicular movement will be added to the existing city-wide circulation system. Similarly, parking, both on the surface and within structures, will be constructed as part of the new development.

The internal circulation system incorporated in this Specific Plan will be required to provide access and safe and efficient traffic movement through the site. Additional improvements to the existing city-wide system will be required to accommodate the traffic generated by the SPA development. The City-wide Traffic Study assumes that a new Highway 4 interchange will be constructed at Willow Avenue and that Sycamore Avenue will be realigned. Signalization of key intersections will be required. No significant impacts are anticipated.

Public Services

Expanded fire and police protection will be required by the proposed development. As mentioned above, development will be phased over time and police and fire staffing plans can be adjusted accordingly. With the provision of adequate roadway widths and radii and the increased fire flow recommended by this Specific Plan, and the Building Security Ordinance and Fire Code currently in effect in the City, no significant impacts are anticipated.

Utilities

The proposed development will require the expansion of the Hercules Sewer Treatment facility and a special study to assess its associated force main and outfall. Solid waste generated by future development will also impact the current county landfill operation. Exact capacity requirements for either of these services cannot be determined until specific development plans have been proposed. This Specific Plan recommends that planning level studies be undertaken as soon as possible so that capacity assumptions can be incorporated in the expansion projections for the treatment plant and Richmond Sanitary Service.

The Specific Plan also recommends that a master drainage plan and development guidelines be incorporated into the development program and tied into the City's existing system. All other utilities are readily available to the site and no significant impacts are anticipated.

IV. Determination

On the basis of this initial evaluation:

- ☐ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.
- ☐ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date

Signature

For

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